

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11.9 G7  
 Edition : 11.12.87  
 Replaces : 18.8.87  
 Test oil : ISO-4113  
 Combination no. : 0 402 036 066  
 Injection pump  
 Pump designation : PES6P110A720/3LS477-  
 2  
 EP type number : 0 412 016 071  
 Governor  
 Governor design. : RQ250/1100PA845  
 Governor no. : 0 421 801 380

Customer-spec. information  
 Customer : MAN

Engine : D2866 F/UH

1st version kW : 177.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

A01

Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.70...11.80

Del. quantity cm<sup>3</sup>/ : 12.3...12.6

100 s: (12.0...12.8)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.0...6.2

Del. quantity cm<sup>3</sup>/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del. quantity : 123.0...126.0

1000 : (120.5...128.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.70

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.1

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.60  
Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 320...360

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 800  
Rack travel in m: 12.20...12.30  
2nd speed rpm : 1100  
Rack travel in m: 12.10...12.30

#### START CUT-OUT

Speed 1/min : 170 (190)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1100  
Del.quantity cm3/ : 132.0...138.0  
1000 s: (129.0...141.0)  
Speed rpm : 500  
Del.quantity cm3/ : 117.0...123.0  
1000 s: (114.0...126.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.70  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 110.0...130.0  
1000 s: (106.0...134.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.00...6.20

Del.quantity cm3/ : 15.0...20.0  
1000 s: (12.5...22.5)  
Spread cm3 : 4.50  
1000 s: (7.50)

#### Remarks:

: MAN-NR. 2-7821



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9 B2  
 Edition : 11.12.87  
 Replaces : 18.8.87  
 Test oil : ISO-4113

Combination no. : 0 402 036 067

Injection pump  
 Pump designation : PES6P110A720/3LS477-  
 2  
 EP type number : 0 412 016 071  
 Governor  
 Governor design. : RGV300...1100PA846  
 Governor no. : 0 421 813 593

Customer-spec. information  
 Customer : MAN

Engine : D2866 F

1st version kW : 177.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.70...11.80

Del. quantity cm<sup>3</sup>/ : 12.3...12.6

100 s: (12.0...12.8)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del. quantity cm<sup>3</sup>/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 450

travel mm : 2.90...3.30

3rd speed rpm : 900

travel mm : 5.80...6.20

4th speed rpm : 1100

travel mm : 7.50...7.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del. quantity : 123.0...126.0

1000 : (120.5...128.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.70

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1350

Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever

position degrees: 15...23

Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 300

Rack travel in mm : 5.90...6.10

## CONSTANT REGULATION

Speed rpm : 305...460

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del. quantity cm<sup>3</sup>/ : 132.0...138.0

1000 s: (129.0...141.0)

Speed rpm : 500

Del. quantity cm<sup>3</sup>/ : 117.0...123.0

1000 s: (114.0...126.0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1140...1150

## STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 110.0...130.0

1000 s: (106.0...134.0)

## LOW IDLE

A04

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Del. quantity cm<sup>3</sup>/ : 15.0...20.0

1000 s: (12.5...22.5)

Spread cm<sup>3</sup> : 4.50

1000 s: (7.50)

Remarks:

: MAN-NR. 2-7822

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9A28  
Edition : 11.12.87  
Replaces : 31.7.87  
Test oil : ISO-4113

Combination no. : 0 402 036 069

Injection pump  
Pump designation : PES6P120A720/3LS470-3

EP type number : 0 412 026 051  
Governor  
Governor design. : RQ300/1100PA679-2  
Governor no. : 0 421 801 402

Customer-spec. information  
Customer : MAN

Engine : D2866LUL/290

1st version kW : 213.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

A05

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.60...10.70

Del. quantity cm3/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del. quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.60  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.1

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.60  
Speed rpm : 300  
Rack travel in mm : 5.00...5.20  
Rack travel in mm : 2.00  
Speed rpm : 345...385

#### TORQUE CONTROL

Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 10.60...10.70  
2nd speed rpm : 750  
Rack travel in m: 11.20...11.40  
3rd speed rpm : 925  
Rack travel in m: 10.70...11.00

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 1000  
Contr.-rod trav.mm: 10.60...10.70

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.80...9.00  
2nd pressure hPa : 210  
Rack travel in m: 9.10...9.20  
3rd pressure hPa : 375  
Rack travel in m: 9.90...10.20

#### START CUT-OUT

Speed 1/min : 190 (210)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1100

A06

Del.quantity cm3/ : 190.0...196.0  
1000 s: (187.0...199.0)  
Aneroid pressure h: 1000  
Speed rpm : 650  
Del.quantity cm3/ : 174.0...180.0  
1000 s: (171.0...183.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 119.0...121.0  
1000 s: (116.0...124.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.60  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 225.0...245.0  
1000 s: (221.0...249.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.00...5.20  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (9.0...21.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7878

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9 G8  
Edition : 22.01.88  
Replaces : 6.11.87  
Test oil : ISO-4113

Combination no. : 0 402 036 072

Injection pump  
Pump designation : PES6P110A720/3LS477-  
2

EP type number : 0 412 016 071  
Governor  
Governor design. : RQ250/1100PA845-1  
Governor no. : 0 421 801 423

Customer-spec. information  
Customer : MAN

Engine : D2566IUH/205

1st version kW : 150.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.30...10.40

Del. quantity cm3/ : 9.1...9.4

100 s: (8.8...9.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del. quantity cm3/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm3 : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 800

Del. quantity : 91.0...94.0

1000 : (88.5...96.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

## Testing:

1st rack travel in: 9.30

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1205...1235

4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.50  
Speed rpm : 250  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 315...355

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 800  
Rack travel in m: 10.80...10.90  
2nd speed rpm : 1100  
Rack travel in m: 10.70...10.90

#### START CUT-OUT

Speed 1/min : 170 (190)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1100  
Del.quantity cm3/ : 103.0...107.0  
1000 s: (100.0...110.0)  
Speed rpm : 500  
Del.quantity cm3/ : 81.0...85.0  
1000 s: (78.0...88.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.30  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 110.0...130.0  
1000 s: (106.0...134.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.90...6.10  
Del.quantity cm3/ : 15.0...20.0  
1000 s: (12.5...22.5)

Spread cm3 : 4.50  
1000 s: (7.50)

Remarks:

APPLICATION  
Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9A31  
Edition : 18.12.87  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 036 073

Injection pump  
Pump designation : PES6P120A720/3LS470-  
2

EP type number : 0 412 026 050  
Governor  
Governor design. : RQ300/1100PA813-4  
Governor no. : 0 421 801 425

Customer-spec. information  
Customer : MAN

Engine : D2866KUH

1st version kW : 265.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

A09

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.50...12.60

Del. quantity cm3/ : 23.8...24.0

100 s: (23.5...24.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.4

Del. quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 238.0...240.0

1000 : (235.0...243.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 11.30  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1185...1215  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.80  
Speed rpm : 300  
Rack travel in mm : 5.20...5.40  
Rack travel in mm : 2.00  
Speed rpm : 400...440

#### TORQUE CONTROL

Dimension a mm : 0.35  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12.30...12.40  
2nd speed rpm : 750  
Rack travel in m: 13.40...13.60  
3rd speed rpm : 880  
Rack travel in m: 13.10...13.30  
4th speed rpm : 925  
Rack travel in m: 12.50...12.80

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Rack travel in mm : 1000  
Contr.-rod trav.mm: 12.50...12.60

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.50...8.70  
2nd pressure hPa : 190  
Rack travel in m: 8.90...9.00  
3rd pressure hPa : 520  
Rack travel in m: 11.10...11.40

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

A10

Aneroid pressure h: 1000  
Speed rpm : 1100  
Del.quantity cm3/ : 218.0...222.0  
1000 s: (215.0...225.0)  
Aneroid pressure h: 1000  
Speed rpm : 650  
Del.quantity cm3/ : 238.0...244.0  
1000 s: (235.0...247.0)  
Aneroid pressure h: 20  
Speed rpm : 500  
Del.quantity cm3/ : 191.0...197.0  
1000 s: (188.0...200.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 119.0...121.0  
1000 s: (116.0...124.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.30  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 225.0...245.0  
1000 s: (221.0...249.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.20...5.40  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (9.0...21.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

#### APPLICATION

Omnibus



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9A32  
 Edition : 18.12.87  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 316  
 Injection pump  
 Pump designation : PES6P120A720LS470  
 EP type number : 0 412 026 046  
 Governor  
 Governor design. : RQ250/1100PA658-11  
 Governor no. : 0 421 801 295

Customer-spec. information  
 Customer : MAN

Engine : D2866KF

1st version kW : 265.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.50...12.60

Del. quantity cm<sup>3</sup>/ : 23.8...24.0

100 s: (23.5...24.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.2...5.4

Del. quantity cm<sup>3</sup>/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del. quantity : 238.0...240.0

1000 : (235.0...243.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.30

Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.80  
Speed rpm : 250  
Rack travel in mm : 5.20...5.40  
Rack travel in mm : 2.00  
Speed rpm : 315...355

#### TORQUE CONTROL

Dimension a mm : 0.55  
Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 12.70...12.80  
2nd speed rpm : 1100  
Rack travel in m: 11.30...11.40  
3rd speed rpm : 915  
Rack travel in m: 12.30...12.50  
4th speed rpm : 975  
Rack travel in m: 11.60...11.90

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 1000  
Contr.-rod trav.mm: 12.50...12.60

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.40...9.50  
2nd pressure hPa : 150  
Rack travel in m: 9.60...9.70  
3rd pressure hPa : 400  
Rack travel in m: 10.90...11.30

#### START CUT-OUT

Speed 1/min : 190 (210)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000

A12

Speed rpm : 1100  
Del.quantity cm3/ : 214.0...218.0  
1000 s: (211.0...221.0)  
Aneroid pressure h: 1000  
Speed rpm : 650  
Del.quantity cm3/ : 239.0...245.0  
1000 s: (236.0...248.0)  
Speed rpm : 500  
Del.quantity cm3/ : 188.0...200.0  
1000 s: (185.0...203.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 139.0...141.0  
1000 s: (136.0...144.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 10.30  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 225.0...245.0  
1000 s: (221.0...249.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.20...5.40  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (9.0...21.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 2-7599

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 C  
 Edition : 26.02.88  
 Replaces : 9.10.87  
 Test oil : ISO-4113

Combination no. : 0 402 046 331

Injection pump  
 Pump designation : PES6P120A32ORS514  
 EP type number : 0 412 026 052  
 Governor  
 Governor design. : RQV275...1000PA495-9  
 Governor no. : 0 421 813 672

Customer-spec. information  
 Customer : RVI

Engine : MIDR062045 K

1st version kW : 176.5  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 11.50...11.60

Del. quantity cm<sup>3</sup>/ : 16.5...16.7

100 s : (16.2...17.0)

Spread cm<sup>3</sup> : 0.5

100 s : (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.4...5.6

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s : (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s : (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 275

travel mm : 1.40...1.60

2nd speed rpm : 500

travel mm : 3.80...4.30

3rd speed rpm : 800

travel mm : 5.70...6.10

4th speed rpm : 1000

travel mm : 7.10...7.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h : 1000

Del. quantity : 165.0...167.0

1000 : (162.0...170.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.00

Speed rpm : 1075...1085

2nd rack travel in: 4.00

Speed rpm : 1165...1195

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 14...22

Testing:

Speed rpm : 200

Minimum rack travel: 7.20

Speed rpm : 275

Rack travel in mm : 5.40...5.60

## CONSTANT REGULATION

Speed rpm : 285...400

## TORQUE CONTROL

Dimension a mm : 1.50

Torque control curve - 1st version

1st speed rpm : 550

Rack travel in m: 11.50...11.60

2nd speed rpm : 1000

Rack travel in m: 9.90...10.00

3rd speed rpm : 700

Rack travel in m: 11.10...11.20

4th speed rpm : 850

Rack travel in m: 10.30...10.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Rack travel in mm : 1000

Contr.-rod trav.mm: 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.10...9.30

2nd pressure hPa : 280

Rack travel in m: 11.10...11.20%

3rd pressure hPa : 120

Rack travel in m: 9.80...10.00

## START CUT-OUT

Speed 1/min : 195 (215)

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1000

Del.quantity cm3/ : 153.0...157.0

1000 s: (150.0...160.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 106.0...108.0

1000 s: (103.0...111.0)

## BREAKAWAY

1st version

Speed rpm : 1075...1085

## STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 135.0...165.0

1000 s: (135.0...165.0)

## LOW IDLE

Speed rpm : 275

Rack travel in mm : 5.40...5.60

Del.quantity cm3/ : 14.0...20.0

1000 s: (11.0...23.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

:

Start-of-delivery mark 10.5° cam angle  
after start of delivery cyl. 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 A 8  
Edition : 11.12.87  
Replaces : 6.11.87  
Test oil : ISO-4113

Combination no. : 0 402 046 332

Injection pump  
Pump designation : PES6P120A32ORS419  
EP type number : 0 412 026 037  
Governor  
Governor design. : RQ275/1050PA844-1  
Governor no. : 0 421 801 421

Customer-spec. information  
Customer : RVI

Engine : MIPRO62045A

1st version kW : 210.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.80...9.90

Del. quantity cm<sup>3</sup>/ : 17.7...17.9

100 s : (17.4...18.2)

Spread cm<sup>3</sup> : 0.5

100 s : (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.8...5.0

Del. quantity cm<sup>3</sup>/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm<sup>3</sup> : 0.8

100 s : (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h : 700

Del. quantity : 177.0...179.0

1000 : (174.0...182.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in : 8.80

Speed rpm : 1110...1120

2nd rack travel in : 4.00

Speed rpm : 1185...1215  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 4.2

#### Testing:

Speed rpm : 200  
Minimum rack travel: 5.90  
Speed rpm : 275  
Rack travel in mm : 4.10...4.30  
Rack travel in mm : 2.00  
Speed rpm : 310...350

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 700  
Contr.-rod trav.mm: 9.80...9.90

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.00...8.20  
2nd pressure hPa : 360  
Rack travel in m: 9.40...9.50  
3rd pressure hPa : 160  
Rack travel in m: 8.40...8.60

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 162.0...168.0  
1000 s: (159.0...171.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 105.0...107.0  
1000 s: (102.0...110.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.80  
Speed rpm : 1110...1120

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.10...4.30

Remarks:

:

Start-of-delivery mark 9.5° cam angle  
after start of delivery cyl. 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 8,8 M 1  
Edition : 12.02.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 335  
Injection pump  
Pump designation : PES6P120A320RS515  
EP type number : 0 412 026 053  
Governor  
Governor design. : RQV300...1150PA527-2K  
Governor no. : 0 421 815 188

Customer-spec. information  
Customer : RVI

Engine : MIDRO62030C

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.20...10.30

Del. quantity cm<sup>3</sup>/ : 14.3...14.5

100 s: (14.0...14.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 600.0

Rack travel in mm : 4.6...4.8

Del. quantity cm<sup>3</sup>/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.70...2.10

2nd speed rpm : 900

travel mm : 5.80...6.20

3rd speed rpm : 1150

travel mm : 7.40...7.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1225

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1150

Del. quantity : 143.0...145.0

1000 : (140.0...148.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

### 1st version

Control lever  
position degrees: 57...65

Testing:  
1st rack travel in: 9.20  
Speed rpm : 1235...1245  
2nd rack travel in: 4.00  
Speed rpm : 1305...1335  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 6...14

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.20  
Speed rpm : 300  
Rack travel in mm : 4.40...4.60

CONSTANT REGULATION  
Speed rpm : 320...440

TORQUE CONTROL  
Dimension a mm : 1.40  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 750  
Rack travel in m: 9.20...9.30  
3rd speed rpm : 500  
Rack travel in m: 8.60...8.80  
4th speed rpm : 350  
Rack travel in m: 8.40...8.80

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 119.0...125.0  
1000 s: (116.0...128.0)  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 67.0...73.0  
1000 s: (64.0...76.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1235...1245

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 135.0...155.0  
1000 s: (131.0...159.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.40...4.60  
Del.quantity cm<sup>3</sup>/ : 13.0...19.0  
1000 s: (10.0...22.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

:  
Start-of-delivery mark 6° cam angle  
after start of delivery cyl. 1



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : UNI 9,5 A  
 Edition : 23.2.88  
 Replaces : 10.85  
 Test oil : ISO-4113

Combination no. : 0 402 046 757

Injection pump  
 Pump designation : PES6P110A72ORS3140  
 EP type number : 0 412 016 716  
 Governor  
 Governor design. : RQV275...1100PAS01-2  
 Governor no. : 0 421 813 462

Customer-spec. information  
 Customer : IVECO-UNIC

Engine : 8460.21.102

1st version kW : 192  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.20...3.30  
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.70...11.80

Del. quantity cm<sup>3</sup>/ : 14.9...15.2

100 s : (14.6...15.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.75)

2nd speed rpm : 275

Rack travel in mm : 6.8...7.0

Del. quantity cm<sup>3</sup>/ : 2.2...2.7

100 s : (1.9...2.9)

Spread cm<sup>3</sup> : 0.45

100 s : (0.75)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.0...1.2

2nd speed rpm : 400

travel mm : 2.7...3.0

3rd speed rpm : 850

travel mm : 5.0...5.2

4th speed rpm : 1100

travel mm : 6.8...7.0

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1260

Rack travel in mm : 15.2...17.8

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h : 700

Del. quantity : 149.0...152.0

1000 : (146.5...154.5)

Spread cm<sup>3</sup> : 4.0

1000 : (7.5)

## RATED SPEED

1st version

Control lever  
position degrees: 59...67

Testing:

1st rack travel in: 10.70  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1245...1275  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 11...19

Testing:

Speed rpm : 100  
Minimum rack travel: 8.40  
Speed rpm : 275  
Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

Speed rpm : 280...525

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Rack travel in mm : 700  
Contr.-rod trav.mm: 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.50...10.60

2nd pressure hPa : 310

Rack travel in m: 11.40...11.50

3rd pressure hPa : 280

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 118.0...121.0  
1000 s: (115.5...123.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

A20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...140.0  
1000 s: (116.0...144.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 6,2 A  
Edition : 09.03.87  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 781  
  
Injection pump  
Pump designation : PES6P110A32ORS3182  
EP type number : 0 412 016 719  
Governor  
Governor design. : RQV275...1175PA833  
Governor no. : 0 421 813 583

Customer-spec. information  
Customer : RVI

Engine : MIDR 060226

1st version kW : 151.0  
Rated speed : 2350

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 4.80...4.90  
: (4.75...4.65)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 13.80...13.90

Del. quantity cm<sup>3</sup>/ : 10.2...10.5

100 s : (9.9...10.7)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 275.0

Rack travel in mm : 6.2...6.4

Del. quantity cm<sup>3</sup>/ : 1.3...1.8

100 s : (1.0...2.0)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
travel mm : 1.00...1.20

2nd speed rpm : 450  
travel mm : 3.50...3.90

3rd speed rpm : 800  
travel mm : 5.50...5.90

4th speed rpm : 1175  
travel mm : 7.80...8.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1250

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Aneroid pressure h : 1000

Del. quantity : 102.0...105.0

1000 : (99.5...107.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 51...59

Testing:  
1st rack travel in: 12.80  
Speed rpm : 1245...1255  
2nd rack travel in: 4.00  
Speed rpm : 1395...1425  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 11...19

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.90  
Speed rpm : 275  
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION  
Speed rpm : 375...480

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 1000  
Contr.-rod trav.mm: 13.80...13.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.80...10.90  
2nd pressure hPa : 500  
Rack travel in m: 13.10...13.20  
3rd pressure hPa : 240  
Rack travel in m: 11.80...12.00

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 102.0...106.0  
1000 s: (99.0...109.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 48.0...51.0  
1000 s: (45.5...53.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.80  
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...150.0  
1000 s: (116.0...154.0)

LOW IDLE

Speed rpm : 275  
Rack travel in mm : 6.20...6.40  
Del.quantity cm<sup>3</sup>/ : 13.0...18.0  
1000 s: (10.5...20.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 E  
Edition : 05.02.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 046 784

Injection pump  
Pump designation : PES6P120A32ORS3139  
EP type number : 0 412 026 718  
Governor  
Governor design. : RQV275...1000PA728-2  
Governor no. : 0 421 813 599

Customer-spec. information  
Customer : RVI

Engine : MIDR 062045 E

1st version kW : 236.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
                  : (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.20...11.300

Del. quantity cm3/ : 20.4...20.6

100 s : (20.1...20.9)

Spread cm3 : 0.5

100 s : (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.1...5.3

Del. quantity cm3/ : 2.0...2.6

100 s : (1.7...2.9)

Spread cm3 : 0.8

100 s : (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
travel mm : 0.90...1.10

2nd speed rpm : 450  
travel mm : 3.30...3.70

3rd speed rpm : 800  
travel mm : 5.60...6.00

4th speed rpm : 1000  
travel mm : 7.00...7.20

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del. quantity : 204.0...206.0

1000 : (201.0...209.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 10.20

Speed rpm : 1065...1075

2nd rack travel in: 4.00

Speed rpm : 1180...1210

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm : 200

Minimum rack travel: 6.90

Speed rpm : 275

Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 230...320

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Rack travel in mm : 1000

Contr.-rod trav.mm: 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.20...8.30

2nd pressure hPa : 320

Rack travel in m: 10.50...10.60

3rd pressure hPa : 160

Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 600

Del.quantity cm<sup>3</sup>/ : 202.0...208.0

1000 s: (199.0...211.0)

A24

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 93.0...97.0

1000 s: (90.0...100.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 5.10...5.30

Del.quantity cm<sup>3</sup>/ : 20.0...26.0

1000 s: (17.0...29.0)

Spread cm<sup>3</sup> : 8.00

1000 s: (12.00)

Remarks:

:

Start-of-delivery mark 9° cam angle  
after start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 6,2 B  
 Edition : 05.06.87  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 785  
 Injection pump  
 Pump designation : PES6P110A32ORS3190  
 EP type number : 0 412 016 720  
 Governor  
 Governor design. : RQV275...117SPA833-1  
 Governor no. : 0 421 813 607

Customer-spec. information  
 Customer : RVI

Engine : MIDR 060226

1st version kW : 154.5  
 Rated speed : 2350

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness : 6.00x1.50x600  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 4.20...4.30  
 : (4.15...4.35)  
 Rack travel in mm : 18.00...21.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50...5.00  
 & maximum rack tra: 18.0...21.0  
 Difference ° CS : 4.00...6.00

## BASIC SETTING

1st speed rpm : 1175  
 -----  
 Rack travel in mm : 13.40...13.50  
 -----  
 Del. quantity cm<sup>3</sup>/ : 11.4...11.7  
 -----  
 100 s: (11.1...11.9)  
 -----  
 Spread cm<sup>3</sup> : 0.4  
 -----  
 100 s: (0.7)  
 -----

2nd speed rpm : 275.0  
 Rack travel in mm : 4.0...4.2  
 Del. quantity cm<sup>3</sup>/ : 1.5...2.0  
 100 s: (1.2...2.2)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 0.90...1.10  
 2nd speed rpm : 450  
 travel mm : 3.40...3.80  
 3rd speed rpm : 800  
 travel mm : 5.10...5.50  
 4th speed rpm : 1175  
 travel mm : 7.20...7.50

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1330  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1175

Aneroid pressure h: 1000  
Del.quantity : 114.0...117.0  
1000 : (111.5...119.5)  
Spread cm3 : 4.00  
1000 : (7.50)

#### RATED SPEED

1st version  
Control lever  
position degrees: 49...57

Testing:  
1st rack travel in: 12.40  
Speed rpm : 1245...1255  
2nd rack travel in: 4.00  
Speed rpm : 1400...1430  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 11...19

Testing:  
Speed rpm : 200  
Minimum rack travel: 6.60  
Speed rpm : 275  
Rack travel in mm : 4.00...4.20

CONSTANT REGULATION  
Speed rpm : 250...320

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 1000  
Contr.-rod trav.mm: 13.40...13.50

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.60...10.80  
2nd pressure hPa : 360  
Rack travel in m: 12.60...12.70  
3rd pressure hPa : 160  
Rack travel in m: 11.50...11.80

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 700  
Del.quantity cm3/ : 109.5...114.5  
1000 s: (106.5...117.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 57.0...60.0  
1000 s: (54.5...62.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.40  
Speed rpm : 1245...1255

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...110.0  
1000 s: (86.0...114.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.00...4.20  
Del.quantity cm3/ : 15.0...20.0  
1000 s: (12.5...22.5)  
Spread cm3 : 4.50  
1000 s: (7.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 6,2 C  
 Edition : 30.03.87  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 786  
 Injection pump  
 Pump designation : PES6P110A320RS3191  
 EP type number : 0 412 016 721  
 Governor  
 Governor design. : RQV275...1250PA833-2  
 Governor no. : 0 421 813 608

Customer-spec. information  
 Customer : RVI

Engine : MIDR 060226

1st version kW : 175.0  
 Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 18.00...21.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.80...13.90

Del. quantity cm<sup>3</sup>/ : 8.4...8.7

100 s : (8.1...8.9)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 275.0

Rack travel in mm : 4.8...5.0

Del. quantity cm<sup>3</sup>/ : 1.9...2.4

100 s : (1.6...2.6)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 0.80...1.20

2nd speed rpm : 450  
 travel mm : 3.00...3.40

3rd speed rpm : 800  
 travel mm : 4.60...5.00

4th speed rpm : 1250  
 travel mm : 7.50...7.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1360

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h : 1000

Del. quantity : 84.0...87.0

1000 : (81.5...89.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 50...5824

Testing:

1st rack travel in: 12.80

Speed rpm : 1315...1325

2nd rack travel in: 4.00

Speed rpm : 1455...1485

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Testing:

Speed rpm : 200

Minimum rack travel: 7.10

Speed rpm : 275

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 280...320

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Rack travel in mm : 1000

Contr.-rod trav.mm: 13.80...13.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 13.10...13.20

2nd pressure hPa : 160

Rack travel in m: 13.50...13.60

3rd pressure hPa : 120

Rack travel in m: 13.20...13.40

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 750

Del.quantity cm3/ : 83.0...88.0

1000 s: (80.0...91.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 59.0...62.0

1000 s: (56.5...64.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 1315...1325

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 90.0...110.0

1000 s: (86.0...114.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.80...5.00

Del.quantity cm3/ : 19.0...24.0

1000 s: (16.5...26.5)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 6,2 B 1  
 Edition : 22.01.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 788  
 Injection pump  
 Pump designation : PES6P110A320RS3190  
 EP type number : 0 412 016 720  
 Governor  
 Governor design. : RQV275...117SPA833-3  
 Governor no. : 0 421 813 656

Customer-spec. information  
 Customer : RVI

Engine : MIDR 0602260

1st version kW : 151.0  
 Rated speed : 2350

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 4.20...4.30  
 : (4.15...4.35)  
 Rack travel in mm : 18.00...21.00

B01

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50...5.00  
 & maximum rack tra: 18.0...21.0  
 Difference ° CS : 4.00...6.00

## BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 13.40...13.50

Del. quantity cm<sup>3</sup>/ : 11.6...11.9

100 s: (11.3...12.1)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 275.0

Rack travel in mm : 4.0...4.2

Del. quantity cm<sup>3</sup>/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.90...1.10

2nd speed rpm : 450

travel mm : 3.40...3.80

3rd speed rpm : 800

travel mm : 5.10...5.50

4th speed rpm : 1175

travel mm : 7.20...7.50

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Aneroid pressure h: 1000  
Del.quantity : 116.0...119.0  
1000 : (113.5...121.5)  
Spread cm3 : 4.00  
1000 : (7.50)

#### RATED SPEED

1st version  
Control lever  
position degrees: 52...60

#### Testing:

1st rack travel in: 12.40  
Speed rpm : 1245...1255  
2nd rack travel in: 4.00  
Speed rpm : 1400...1430  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 14...22

#### Testing:

Speed rpm : 200  
Minimum rack travel: 6.60  
Speed rpm : 275  
Rack travel in mm : 4.00...4.20

#### CONSTANT REGULATION

Speed rpm : 250...320

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Rack travel in mm : 1000  
Contr.-rod trav.mm: 13.40...13.50

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.10...10.30  
2nd pressure hPa : 360  
Rack travel in m: 12.60...12.70  
3rd pressure hPa : 160  
Rack travel in m: 11.00...11.40

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 700  
Del.quantity cm3/ : 111.5...116.5  
1000 s: (108.5...119.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 51.0...54.0  
1000 s: (48.5...56.5)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 12.40  
Speed rpm : 1245...1255

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...110.0  
1000 s: (86.0...114.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.00...4.20  
Del.quantity cm3/ : 17.0...22.0  
1000 s: (14.5...24.5)  
Spread cm3 : 4.50  
1000 s: (7.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 12,0 F2  
Edition : 05.02.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 791  
  
Injection pump  
Pump designation : PES6P120A320RS3139  
EP type number : 0 412 026 718  
Governor  
Governor design. : RQV275...950PA728-4  
Governor no. : 0 421 813 678

Customer-spec. information  
Customer : RVI

Engine : MIDR 063540 H

1st version kW : 264.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
                  : (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 13.30...13.40

Del. quantity cm3/ : 24.9...25.1

100 s: (24.6...25.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.6...5.8

Del. quantity cm3/ : 2.2...2.8

100 s: (1.9...3.1)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
travel mm : 1.00...1.20

2nd speed rpm : 450  
travel mm : 3.30...3.80

3rd speed rpm : 800  
travel mm : 5.80...6.00

4th speed rpm : 950  
travel mm : 6.80...6.90

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Aneroid pressure h: 1000

Del. quantity : 249.0...251.0

1000 : (246.0...254.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.30

Speed rpm : 1015...1025

2nd rack travel in: 4.00

Speed rpm : 1160...1190

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm : 200

Minimum rack travel: 7.40

Speed rpm : 275

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 295...400

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Rack travel in mm : 1000

Contr.-rod trav.mm: 13.30...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.50...9.60

2nd pressure hPa : 660

Rack travel in m: 12.60...12.70

3rd pressure hPa : 200

Rack travel in m: 10.30...10.50

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 600

Del.quantity cm3/ : 255.0...261.0

1000 s: (252.0...264.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 120.0...122.0

1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 5.60...5.80

Del.quantity cm3/ : 22.0...28.0

1000 s: (19.0...31.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

:

Start-of-delivery mark 9° cam angle  
after start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 A11  
 Edition : 07.01.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 793  
 Injection pump  
 Pump designation : PES6P110A820LS3131  
 EP type number : 0 412 016 715  
 Governor  
 Governor design. : RQ300/1100PA800-1  
 Governor no. : 0 421 801 426

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM447h

1st version kW : 150.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.90...10.00

Del. quantity cm<sup>3</sup>/ : 10.9...11.1

100 s: (10.6...11.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 109.0...111.0

1000 : (106.5...113.5)

Spread cm<sup>3</sup> : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 8.90

Speed rpm : 1145...1160

2nd rack travel in: 4.00  
Speed rpm : 1200...1230  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.2

Testing:  
Speed rpm : 200  
Minimum rack travel: 9.50  
Speed rpm : 300  
Rack travel in mm : 7.10...7.30  
Rack travel in mm : 2.00  
Speed rpm : 360...400

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 80.0...84.0  
1000 s: (77.0...87.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.90  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

APPLICATION  
Omnibus



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 9,6 V 1  
Edition : 29.01.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 794  
  
Injection pump  
Pump designation : PES6P110A72ORS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1075PA862-1  
Governor no. : 0 421 813 684

Customer-spec. information  
Customer : KHD

Engine : BF6L513 R/C

1st version kW : 150.0  
Rated speed : 2150

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075  
Rack travel in mm : 12.40...12.50  
Del. quantity cm<sup>3</sup>/ : 13.1...13.3  
100 s : (12.8...13.6)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)  
  
2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s : (1.3...2.4)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.10...1.50  
2nd speed rpm : 450  
travel mm : 2.60...3.20  
3rd speed rpm : 700  
travel mm : 4.80...5.40  
4th speed rpm : 1110  
travel mm : 7.90...8.10  
5th speed rpm : 1230  
travel mm : 9.00...9.40

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1040  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1075  
Del. quantity : 131.0...133.0  
1000 : (128.0...136.0)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 11.40

Speed rpm : 1110...1120

2nd rack travel in: 4.00

Speed rpm : 1215...1225

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 16...24

Testing:

Speed rpm : 100

Minimum rack travel: 9.10

Speed rpm : 300

Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

Speed rpm : 300...480

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del. quantity cm<sup>3</sup>/ : 131.0...137.0

1000 s: (128.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1110...1120

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 14,9 H  
Edition : 15.01.88  
Replaces : 10.8.87  
Test oil : ISO-4113

Combination no. : 0 402 048 705

Injection pump  
Pump designation : PES8P120A320RS3199  
EP type number : 0 412 028 705  
Governor  
Governor design. : RQV275...1050PA665  
Governor no. : 0 421 813 370

Customer-spec. information  
Customer : RVI

Engine : MIVR083530

1st version kW : 320.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
                  : (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 4- 2- 7- 3-  
                  6- 5

Phasing : 0-45-90-135-180-225-  
                  270-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.40...11.50

Del. quantity cm<sup>3</sup>/ : 20.2...20.4

100 s: (19.9...20.7)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0  
Rack travel in mm : 4.1...4.3  
Del. quantity cm<sup>3</sup>/ : 1.7...2.3  
100 s: (1.4...2.6)  
Spread cm<sup>3</sup> : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 275  
travel mm : 1.40...1.60  
2nd speed rpm : 450  
travel mm : 3.40...3.80  
3rd speed rpm : 800  
travel mm : 5.60...6.00  
4th speed rpm : 1050  
travel mm : 7.50...7.70

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1140  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1050  
Aneroid pressure h: 700  
Del. quantity : 202.0...204.0  
1000 : (199.0...207.0)

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 62...70

#### Testing:

1st rack travel in: 10.40  
Speed rpm : 1115...1125  
2nd rack travel in: 4.00  
Speed rpm : 1215...1245  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 7...15

#### Testing:

Speed rpm : 200  
Minimum rack travel: 5.60  
Speed rpm : 275  
Rack travel in mm : 3.80...4.00

#### CONSTANT REGULATION

Speed rpm : 280...405

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Rack travel in mm : 700  
Contr.-rod trav.mm: 11.40...11.50

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.70...8.90  
2nd pressure hPa : 420  
Rack travel in m: 10.60...10.70  
3rd pressure hPa : 360  
Rack travel in m: 9.40...9.60

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 188.0...196.0  
1000 s: (185.0...199.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 110.0...112.0  
1000 s: (107.0...115.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.40  
Speed rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 160.0...190.0  
1000 s: (156.0...194.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 3.80...4.00

#### Remarks:

:  
Start-of-delivery mark 13° cam angle  
after start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,7 E 1  
Edition : 07.01.88  
Replaces : 2.11.87  
Test oil : ISO-4113

Combination no. : 0 402 076 724

Injection pump  
Pump designation : PES6P110A82QLS3131-1  
EP type number : 0 412 016 717  
Governor  
Governor design. : RSV350...750POAS36  
Governor no. : 0 421 833 279

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM447

1st version kW : 129.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
: (4.25...4.45)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.80

Del. quantity cm<sup>3</sup>/ : 14.5...14.7

100 s: (14.2...14.9)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 145.0...147.0

1000 : (142.5...149.5)

Spread cm<sup>3</sup> : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Control lever

position degrees: 24...32

Testing:

1st rack travel in: 11.70

Speed rpm : 750...755  
2nd rack travel in: 4.00  
Speed rpm : 775...788  
4th rack travel in: 900  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 13...21  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 18.00  
Speed rpm : 350  
Rack travel in mm : 6.90...7.10  
Rack travel in mm : 2.00  
Speed rpm : 360...400

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.20  
Speed rpm : 740...750

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 22,0 A  
Edition : 19.02.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 640 810  
  
Injection pump  
Pump designation : PE12P120A32OLS7814  
EP type number : 0 412 620 813  
Governor  
Governor design. : RQV350...1050PA870-1  
Governor no. : 0 421 813 680

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 611.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 150...170

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90  
: (4.75...4.95)  
Rack travel in mm : 19.00...21.00  
Firing order : 12- 1- 5- 9- 8- 3-  
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
180-225-240-285-300-  
345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 12.50...12.70

Del. quantity cm3/ : 24.5...24.7

100 s: (24.2...25.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.4...4.8

Del. quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.90...2.10

2nd speed rpm : 700

travel mm : 4.10...4.50

3rd speed rpm : 1100

travel mm : 7.60...8.00

4th speed rpm : 1200

travel mm : 9.50...9.90

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 650  
Aneroid pressure h: 1100  
Del. quantity : 245.0...247.0  
1000 : (242.0...250.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 64...72

Testing:  
1st rack travel in: 12.20  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 14...22

Testing:  
Speed rpm : 200  
Minimum rack travel: 6.60  
Speed rpm : 350  
Rack travel in mm : 4.40...4.80

CONSTANT REGULATION  
Speed rpm : 350...600

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 13.10...13.30  
2nd speed rpm : 900  
Rack travel in m: 13.30...13.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Rack travel in mm : 1100  
Contr.-rod trav. mm: 12.50...12.70

Measurement  
Speed 1/min : 600

1st pressure hPa : 400  
Rack travel in m: 8.60...8.80  
2nd pressure hPa : 670  
Rack travel in m: 11.50...11.70

3rd pressure hPa : 1550  
Rack travel in m: 12.80...13.00  
4th pressure hPa : -  
Rack travel in m: 7.30...7.50

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1800  
Speed rpm : 1050  
Del. quantity cm3/ : 268.0...272.0  
1000 s: (265.0...275.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del. quantity cm3/ : 270.0...273.0  
1000 s: (267.0...276.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 800  
Speed rpm : 1050  
Del. quantity cm3/ : 174.0...176.0  
1000 s: (171.0...179.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm3/ : 121.0...123.0  
1000 s: (118.0...126.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.20  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 260.0...280.0  
1000 s: (256.0...284.0)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,0 T 2  
 Edition : 19.02.88  
 Replaces : 27.3.87  
 Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump  
 Pump designation : PE6P120A320LS7808  
 EP type number : 0 412 626 816  
 Governor  
 Governor design. : RQV300...1050PA797-2  
 Governor no. : 0 421 813 614

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM441 LA

1st version kW : 240.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.80...14.00

Del. quantity cm<sup>3</sup>/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 1075

travel mm : 7.40...7.60

4th speed rpm : 1100

travel mm : 8.00...8.40

5th speed rpm : 1150

travel mm : 9.00...9.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 800  
Del.quantity : 209.0...211.0  
1000 : (206.0...214.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 36...44

Testing:  
1st rack travel in: 13.60  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Control lever  
position degrees: 8...16

Testing:  
Speed rpm : 100  
Minimum rack trave: 7.00  
Speed rpm : 300  
Rack travel in mm : 5.50...5.80

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : 0.30  
2nd speed rpm : 1050  
Rack travel in m: 14.60...14.80  
3rd speed rpm : 800  
Rack travel in m: 15.90...15.10  
4th speed rpm : 700

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Rack travel in m: 800  
Contr.-rod trav.mm: 13.80...14.00

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.70...10.90  
2nd pressure hPa : 550  
Rack travel in m: 12.60...12.80

3rd pressure hPa : 975  
Rack travel in m: 13.90...14.00  
4th pressure hPa : 1100  
Rack travel in m: 14.40...14.60  
5th pressure hPa : -  
Rack travel in m: 8.80...9.00

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1300  
Speed rpm : 1050  
Del.quantity cm3/ : 231.0...234.0  
1000 s: (228.0...237.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1300  
Speed rpm : 800  
Del.quantity cm3/ : 238.0...242.0  
1000 s: (235.0...245.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 133.0...135.0  
1000 s: (130.0...138.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.60  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 190.0...210.0  
1000 s: (186.0...214.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 11,1 C  
 Edition : 05.02.88  
 Replaces : 2.11.87  
 Test oil : ISO-4113  
 Combination no. : 0 402 646 845  
 Injection pump  
 Pump designation : PE6P120A720RS7139  
 EP type number : 0 412 626 819  
 Governor  
 Governor design. : RGV200...1000PA725-2  
 Governor no. : 0 421 813 632

Customer-spec. information  
 Customer : SAAB-SCANIA

Engine : DSC11 13

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
 -----  
 Rack travel in mm : 15.20...15.30  
 -----  
 Del. quantity cm<sup>3</sup>/ : 23.6...23.8  
 -----  
 100 s : (23.3...24.1)  
 -----  
 Spread cm<sup>3</sup> : 0.6  
 -----  
 100 s : (0.9)  
 -----

2nd speed rpm : 225.0  
 Rack travel in mm : 5.5...5.7  
 Del. quantity cm<sup>3</sup>/ : 1.8...2.2  
 100 s : (1.5...2.5)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (0.6)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225  
 travel mm : 1.20...1.60  
 2nd speed rpm : 350  
 travel mm : 2.40...3.00  
 3rd speed rpm : 650  
 travel mm : 4.50...5.10  
 4th speed rpm : 1045  
 travel mm : 8.40...8.60  
 5th speed rpm : 1170  
 travel mm : 10.10...10.50

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1040  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Aneroid pressure h : 900  
 Del. quantity : 236.0...238.0  
 1000 : (233.0...241.0)

Spread cm3 : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 59...67

Testing:  
1st rack travel in: 14.20  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 7...15

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.00  
Speed rpm : 225  
Rack travel in mm : 5.50...5.70  
Rack travel in mm : 2.00  
Speed rpm : 410...470

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 15.20...15.30

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 12.40...12.50  
2nd pressure hPa : 535  
Rack travel in m: 14.60...14.70  
3rd pressure hPa : 290  
Rack travel in m: 13.10...13.30

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 1000  
Del.quantity cm3/ : 226.0...234.0  
1000 s: (224.0...236.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm3/ : 169.0...173.0  
1000 s: (167.0...175.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 14.20  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...290.0  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 225  
Rack travel in mm : 5.50...5.70  
Del.quantity cm3/ : 18.0...22.0  
1000 s: (15.0...25.0)  
Spread cm3 : 3.00  
1000 s: (6.00)

Remarks:  
Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on August 20, 1987.  
Start of delivery - engine: 15° before  
TDC  
Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PEN 16,2 B  
Edition : 12.02.88  
Replaces : 20.11.87  
Test oil : ISO-4113

Combination no. : 0 402 646 857

Injection pump  
Pump designation : PE6P130A72ORS7150  
EP type number : 0 412 636 808  
Governor  
Governor design. : RQV250...900PA881  
Governor no. : 0 421 813 676

Customer-spec. information  
Customer : VOLVO-PENTA

Engine : TAMD 162 (HD)

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
: (3.55...3.75)

Rack travel in mm : 9.00...12.00

B20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.20...10.30

Del. quantity cm3/ : 29.2...29.4

100 s: (28.8...29.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.7...3.9

Del. quantity cm3/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
travel mm : 0.90...1.30

2nd speed rpm : 350  
travel mm : 2.00...2.60

3rd speed rpm : 700  
travel mm : 4.40...5.00

4th speed rpm : 925  
travel mm : 7.30...7.50

5th speed rpm : 985  
travel mm : 8.10...8.50

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 980

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 292.0...294.0

1000 : (288.0...298.0)

Spread        cm3 : 5.00  
              1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 55...63

Testing:  
1st rack travel in: 9.20  
Speed        rpm : 920...925  
2nd rack travel in: 4.00  
Speed        rpm : 970...1000  
4th rack travel in: 1100  
Speed        rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 6...14

Testing:  
Speed        rpm : 100  
Minimum rack travel: 5.30  
Speed        rpm : 250  
Rack travel in mm : 3.70...3.90

CONSTANT REGULATION  
Speed        rpm : 250...360

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed        rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 10.20...10.30

Measurement  
Speed        1/min : 500

1st pressure hPa : -  
Rack travel in m: 7.60...7.80  
2nd pressure hPa : 335  
Rack travel in m: 7.80...8.00  
3rd pressure hPa : 665  
Rack travel in m: 9.80...10.00

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed        rpm : 700  
Del.quantity cm3/ : 192.5...195.5  
              1000 s: (189.0...199.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20  
Speed        rpm : 920...925

#### STARTING FUEL DELIVERY

Speed        rpm : 100

#### LOW IDLE

Speed        rpm : 250  
Rack travel in mm : 3.70...3.90  
Del.quantity cm3/ : 17.0...22.0  
              1000 s: (14.5...24.5)  
Spread        cm3 : 5.00  
              1000 s: (7.00)

#### Remarks:

:  
Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 14,2 D  
Edition : 24.2.88  
Replaces : 26.8.87  
Test oil : ISO-4113

Combination no. : 0 402 648 807

Injection pump  
Pump designation : PE8P120A920/4LS7008  
EP type number : 0 412 628 803  
Governor  
Governor design. : RQV200...950PA547-1  
Governor no. : 0 421 813 360

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 01

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
: (4.45...4.65)

Rack travel in mm : 6.00...8.00

Firing order : 1-2-7-3-4-5-6-8

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0,50(0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.00...13.90  
& maximum rack tra: 21.00  
Difference ° CS : 1.45...2.15

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.90...14.00

Del. quantity cm<sup>3</sup>/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm<sup>3</sup> : 0,7

100 s: (1,0)

2nd speed rpm : 225  
Rack travel in mm : 4.70...4.90  
Del. quantity cm<sup>3</sup>/ : 1.4...1.8

100 s: (-)

Spread cm<sup>3</sup> : 0,3  
100 s: (0,6)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225  
travel mm : 1...30...1.50  
2nd speed rpm : 270  
travel mm : 1.90...2.10  
3rd speed rpm : 360  
travel mm : 2.60...3.00  
4th speed rpm : 990  
travel mm : 7.80...8.00  
5th speed rpm : 1120  
travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1040  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700



Aneroid pressure h: 900  
Del. quantity : 197.0...199.0  
1000 : (194.0...202.0)  
Spread cm3 : 7.0  
1000 : (10.0)

#### RATED SPEED

1st version  
Control lever  
position degrees: 56...64

Testing:  
1st rack travel in: 12.90  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1110...1140  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 6...14

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.20  
Speed rpm : 225  
Rack travel in mm : 4.70...4.90  
Rack travel in mm : 2.00  
Speed rpm : 330...390

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav. mm: 13.90...14.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.00...11.10  
2nd pressure hPa : 335  
Rack travel in m: 13.10...13.20  
3rd pressure hPa : 215  
Rack travel in m: 11.60...11.80

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 950  
Del. quantity cm3/ : 190.0...198.0  
1000 s: (188.0...200.0)

B23

Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm3/ : 146.0...150.0  
1000 s: (144.0...152.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.90  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 240.0...290.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 225  
Rack travel in mm : 4.70...4.90  
Del. quantity cm3/ : 14.0...18.0  
1000 s: (-)  
Spread cm3 : 3.0  
1000 s: (6.0)

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1986-06-09  
Engine firing sequence: 1-5-4-2-6-3-7-8

Start of delivery - engine:  $22^{\circ}$  before  
TDC at control-rod travel = 6.0...  
8.0 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 14,2 D2  
Edition : 12.02.88  
Replaces : 9.10.87  
Test oil : ISO-4113

Combination no. : 0 402 648 815

Injection pump  
Pump designation : PE8P120A920/4LS7008X  
EP type number : 0 412 628 812  
Governor  
Governor design. : RQV200...950PA547-6  
Governor no. : 0 421 813 499

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 02

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 4.50...4.60  
: (4.45...4.65)

Rack travel in mm : 6.00...8.00

Firing order : 1- 2- 7- 3- 4- 5-  
6- 8

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.00...12.80  
& maximum rack tra: 21.00  
Difference ° CS : 1.05...1.75

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.80...12.90

Del. quantity cm<sup>3</sup>/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm<sup>3</sup> : 0.7

100 s: (1.0)

2nd speed rpm : 225.0

Rack travel in mm : 4.7...4.9

Del. quantity cm<sup>3</sup>/ : 1.4...1.8

100 s: (-)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225  
travel mm : 1.30...1.40

2nd speed rpm : 260  
travel mm : 1.70...1.90

3rd speed rpm : 360  
travel mm : 2.60...3.00

4th speed rpm : 1000  
travel mm : 7.90...9.00

5th speed rpm : 1110  
travel mm : 9.30...9.50

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Aneroid pressure h: 900  
Del.quantity : 183.0...185.0  
1000 : (180.0...188.0)  
Spread cm3 : 7.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 55...63

Testing:  
1st rack travel in: 11.80  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1090...1120  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 6...14

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.20  
Speed rpm : 225  
Rack travel in mm : 4.70...4.90  
Rack travel in mm : 2.00  
Speed rpm : 330...390

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 12.80...12.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.00...11.10  
3rd pressure hPa : 215  
Rack travel in m: 11.60...11.80

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 950

Del.quantity cm3/ : 177.0...185.0  
1000 s: (175.0...187.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 146.0...150.0  
1000 s: (144.0...152.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.80  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...290.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 225  
Rack travel in mm : 4.70...4.90  
Del.quantity cm3/ : 14.0...18.0  
1000 s: (-)  
Spread cm3 : 3.00  
1000 s: (6.00)

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on May 3, 1985

Start of delivery - engine: 22° before  
TDC at control-rod travel = 6.0...

8.0 mm

Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 14,0 H  
Edition : 29.01.88  
Replaces : 9.3.87  
Test oil : ISO-4113

Combination no. : 0 402 648 826

Injection pump  
Pump designation : PE8P120A920/4LS7125S  
EP type number : 0 412 628 815  
Governor  
Governor design. : RQV200...950PA736-1  
Governor no. : 0 421 813 551

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 05

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)  
Rack travel in mm : 9.00...12.00

B28

Firing order : 1- 2- 7- 3- 4- 5-  
6- 8

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
-----  
Rack travel in mm : 13.30...13.40  
-----  
Del. quantity cm3/ : 20.9...21.1  
-----  
100 s: (20.6...21.4)  
-----  
Spread cm3 : 0.6  
-----  
100 s: (0.9)  
-----

2nd speed rpm : 225.0  
Rack travel in mm : 5.1...5.3  
Del. quantity cm3/ : 1.6...2.0  
100 s: (-)  
Spread cm3 : 0.3  
100 s: (0.6)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225  
travel mm : 1.30...1.40  
2nd speed rpm : 330  
travel mm : 2.40...2.70  
3rd speed rpm : 420  
travel mm : 3.10...3.40  
4th speed rpm : 1000  
travel mm : 7.90...8.10  
5th speed rpm : 1120  
travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1040  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Aneroid pressure h: 900  
Del. quantity : 209.0...211.0  
1000 : (206.0...214.0)

Spread cm3 : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 56...64

Testing:  
1st rack travel in: 12.30  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1100...1130  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 6...14

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.40  
Speed rpm : 225  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 2.00  
Speed rpm : 340...400

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 13.30...13.40

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.20...11.30  
2nd pressure hPa : 365  
Rack travel in m: 12.80...12.90  
3rd pressure hPa : 215  
Rack travel in m: 11.90...12.10

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 950  
Del.quantity cm3/ : 199.0...207.0  
1000 s: (197.0...209.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm3/ : 158.0...162.0  
1000 s: (156.0...164.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.30  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...290.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 225  
Rack travel in mm : 4.90...5.10

Remarks:

:  
Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on August 20, 1987.

Start of delivery - engine: 16° before  
TDC  
Engine firing sequence: 1-5-4-2-6-3-7-8



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 A 7  
Edition : 26.02.88  
Replaces : 26.6.87  
Test oil : ISO-4113

Combination no. : 0 402 648 834

Injection pump  
Pump designation : PE8P120A32QLS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RQV350..900PA866-1  
Governor no. : 0 421 813 629

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 267.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
                  4- 1

Phasing : 0-45-90-135-180-225-  
                  270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 880  
Rack travel in mm : 13.80...13.90  
Del. quantity cm<sup>3</sup>/ : 20.3...20.5  
                  100 s: (20.0...20.8)  
Spread cm<sup>3</sup> : 0.5  
                  100 s: (0.9)

2nd speed rpm : 350.0  
Rack travel in mm : 5.8...6.1  
Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
                  100 s: (1.3...2.5)  
Spread cm<sup>3</sup> : 0.6  
                  100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.40  
2nd speed rpm : 425  
travel mm : 2.40...2.60  
3rd speed rpm : 550  
travel mm : 3.30...3.70  
4th speed rpm : 900  
travel mm : 8.20...8.60  
5th speed rpm : 975  
travel mm : 9.70...10.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 930  
Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 880  
Aneroid pressure h: 900  
Del.quantity : 203.0...205.0  
1000 : (200.0...208.0)  
Spread cm3 : 5.00  
1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 61...69

Testing:

1st rack travel in: 12.80  
Speed rpm : 920...930  
2nd rack travel in: 4.00  
Speed rpm : 990...1020  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever  
position degrees: 8...162

Testing:

Speed rpm : 100  
Minimum rack trave: 7.90  
Speed rpm : 350  
Rack travel in mm : 5.80...6.10

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0,60  
Torque control curve - 1st version  
1st speed rpm : 880  
Rack travel in m: 13.80...13.90  
2nd speed rpm : 750  
Rack travel in m: 14.40...14.60  
3rd speed rpm : 825  
Rack travel in m: 14.00...14.20

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Rack travel in mm : -  
Contr.-rod trav.mm: 11.20...11.50

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 12.20...12.40  
2nd pressure hPa : 550  
Rack travel in m: 13.80...14.00

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 700  
Del.quantity cm3/ : 212.0...216.0  
1000 s: (209.0...219.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 143.0...145.0  
1000 s: (140.0...148.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80  
Speed rpm : 920...930

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 180.0...200.0  
1000 s: (176.0...204.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 14,0 H1  
Edition : 15.01.88  
Replaces : 2.11.87  
Test oil : ISO-4113

Combination no. : 0 402 648 836

Injection pump  
Pump designation : PE8P120A920/4LS7125T  
EP type number : 0 412 628 824  
Governor  
Governor design. : RQV200...950PA736-4  
Governor no. : 0 421 813 646

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 03 L09,L10

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 7- 3- 4- 5-  
6- 8

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.80...13.90

Del. quantity cm<sup>3</sup>/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.9...5.1

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (-)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225  
travel mm : 1.10...1.50

2nd speed rpm : 350  
travel mm : 2.30...2.90

3rd speed rpm : 650  
travel mm : 4.30...4.90

4th speed rpm : 995  
travel mm : 7.50...7.70

5th speed rpm : 1125  
travel mm : 9.00...9.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 221.0...223.0

1000 : (218.0...226.0)

Spread cm3 : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 57...65

Testing:  
1st rack travel in: 12.80  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1115...1145  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 6...14

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.40  
Speed rpm : 225  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 2.00  
Speed rpm : 340...400

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 13.80...13.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.70...10.80  
2nd pressure hPa : 445  
Rack travel in m: 12.90...13.00  
3rd pressure hPa : 325  
Rack travel in m: 11.40...11.60

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 950  
Del.quantity cm3/ : 211.0...219.0  
1000 s: (209.0...221.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm3/ : 138.0...142.0  
1000 s: (136.0...144.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.80  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...290.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 225  
Rack travel in mm : 4.90...5.10  
Del.quantity cm3/ : 16.0...20.0  
Spread cm3 : 3.00  
1000 s: (6.00)

#### Remarks:

:  
Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without R0B0 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on August 20, 1987.  
Start of delivery - engine: 16° before  
TDC  
Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 14,0 H2  
Edition : 29.01.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 648 839  
Injection pump  
Pump designation : PE8P120A920/4LS712ST  
EP type number : 0 412 628 824  
Governor  
Governor design. : RGV200...950PA736-1  
Governor no. : 0 421 813 551

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 03

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 7- 3- 4- 5-  
6- 8

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
Rack travel in mm : 13.80...13.90  
Del.quantity cm3/ : 22.1...22.3  
100 s : (21.8...22.6)  
Spread cm3 : 0.6  
100 s : (0.9)  
2nd speed rpm : 225.0  
Rack travel in mm : 5.3...5.5  
Del.quantity cm3/ : 1.6...2.0  
100 s : (-)  
Spread cm3 : 0.3  
100 s : (0.6)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225  
travel mm : 1.10...1.50  
2nd speed rpm : 350  
travel mm : 2.30...2.90  
3rd speed rpm : 650  
travel mm : 4.30...4.90  
4th speed rpm : 995  
travel mm : 7.50...7.70  
5th speed rpm : 1125  
travel mm : 9.00...9.40

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1070  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Aneroid pressure h: 900  
Del.quantity : 221.0...223.0  
1000 : (218.0...226.0)

Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 57...65

Testing:  
1st rack travel in: 12.80  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1115...1145  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 6...14

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.40  
Speed rpm : 225  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 2.00  
Speed rpm : 340...400

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 13.80...13.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.20...11.30  
2nd pressure hPa : 365  
Rack travel in m: 12.80...12.90  
3rd pressure hPa : 215  
Rack travel in m: 11.90...12.10

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 211.0...219.0  
1000 s: (209.0...221.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 158.0...162.0  
1000 s: (156.0...164.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.80  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...290.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 225  
Rack travel in mm : 4.90...5.10

Remarks:

:  
Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without R0B0 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1987-12-15

Start of delivery - engine: 16° before  
TDC  
Engine firing sequence: 1-5-4-2-6-3-7-8



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 A 9  
Edition : 11.12.87  
Replaces : 20.11.87  
Test oil : ISO-4113

Combination no. : 0 402 648 842

Injection pump  
Pump designation : PE8P120A32OLS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RQV350..950PA866-2  
Governor no. : 0 421 813 673

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 275.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Rack travel in mm : 20.00...21.00  
Firing order : 8- 7- 2- 6- 3- 5-  
                  4- 1

Phasing : 0-45-90-135-180-225-  
                  270-315  
Tolerance + - ° : 0.50 (0.75)  
Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 930  
Rack travel in mm : 15.30...15.40  
Del. quantity cm<sup>3</sup>/ : 21.1...21.3  
                  100 s: (20.8...21.6)  
Spread cm<sup>3</sup> : 0.5  
                  100 s: (0.9)  
2nd speed rpm : 350.0  
Rack travel in mm : 6.2...6.6  
Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
                  100 s: (1.3...2.5)  
Spread cm<sup>3</sup> : 0.6  
                  100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.60...0.80  
2nd speed rpm : 425  
travel mm : 2.40...2.60  
3rd speed rpm : 800  
travel mm : 5.30...5.60  
4th speed rpm : 1000  
travel mm : 7.80...8.20  
5th speed rpm : 1120  
travel mm : 9.50...10.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : ?  
Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 930  
Aneroid pressure h: 950  
Del. quantity : 211.0...213.0  
1000 : (208.0...216.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 60...68

#### Testing:

1st rack travel in: 14.40  
Speed rpm : 980...990  
2nd rack travel in: 4.00  
Speed rpm : 1080...1110  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Control lever  
position degrees: 8...16

#### Testing:

Speed rpm : 100  
Minimum rack travel: 7.90  
Speed rpm : 350  
Rack travel in mm : 6.20...6.40

#### CONSTANT REGULATION

Speed rpm : 300...500

#### TORQUE CONTROL

Dimension a mm : 0.90  
Torque control curve - 1st version  
1st speed rpm : 950  
Rack travel in m: 15.30...15.40  
2nd speed rpm : 800  
Rack travel in m: 16.40...16.60  
3rd speed rpm : 900  
Rack travel in m: 15.90...16.10

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Rack travel in mm : -  
Contr.-rod trav. mm: 10.90...11.30

#### Measurement

Speed 1/min : 600

1st pressure hPa : 450

C12

Rack travel in m: 11.70...11.90  
2nd pressure hPa : 700  
Rack travel in m: 13.80...14.00

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 950  
Speed rpm : 800  
Del. quantity cm3/ : 233.0...237.0  
1000 s: (230.0...240.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 950  
Speed rpm : 930  
Del. quantity cm3/ : 167.0...169.0 \*  
1000 s: (164.0...172.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm3/ : 143.0...145.0  
1000 s: (140.0...148.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 14.40  
Speed rpm : 980...990

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 190.0...210.0  
1000 s: (186.0...214.0)

Remarks:

\* = Set at reduced-delivery stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 21,6 B  
Edition : 18.12.87  
Replaces : 5.6.87  
Test oil : ISO-4113

Combination no. : 0 402 670 803

Injection pump  
Pump designation : PE12P120AS20/SRS7146  
EP type number : 0 412 620 808  
Governor  
Governor design. : RSUV325...1150POA358  
Governor no. : 0 421 829 105

Customer-spec. information  
Customer : MWM

Engine : TBD234V12

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 9- 10- 5- 6-  
11- 12- 3- 4- 7- 8

Phasing : 0-30-60-90-120-150-  
180-210-240-270-300-  
330

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 14.90...15.00

Del. quantity cm<sup>3</sup>/ : 26.0...26.2

100 s : (25.8...26.6)

Spread cm<sup>3</sup> : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 6.5...6.7

Del. quantity cm<sup>3</sup>/ : 3.0...4.0

100 s : (2.7...4.3)

Spread cm<sup>3</sup> : 0.6

100 s : (1.0)

3rd speed rpm : 1100

Rack travel in mm : 7.00...7.10

Del. quantity cm<sup>3</sup>/ : 2.0...7.0 \*

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

## RATED SPEED

1st version

Control lever

position degrees: 66...74

Testing:

1st rack travel in: 13.90

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1280...1310

4th rack travel in: 1440

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 29...37  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6.1  
Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Rack travel in mm : 2.00  
Speed rpm : 440...500

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : -  
Contr.-rod trav.mm: 9.40...9.60

Measurement  
Speed 1/min : 500  
2nd pressure hPa : 725  
Rack travel in m: 14.70...14.80

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.90  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...240.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Del.quantity cm3/ : 30.0...40.0  
1000 s: (27.0...43.0)  
Spread cm3 : 6.00  
1000 s: (10.00)

Remarks:

:

\* = Element disconnected at idle for  
cylinders 2, 4, 6, 8, 10 and 12.  
Hydraulic latching of starting  
delivery.

Latching at 0.75 bar...0.85 bar.

C14

Unlatching at 0.35 bar...0.45 bar.

Full-load delivery not known. Set  
according to engine test report.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MMM 10,8 C  
 Edition : 18.12.87  
 Replaces : 5.6.87  
 Test oil : ISO-4113  
 Combination no. : 0 402 676 804  
 Injection pump  
 Pump designation : PE6P120A320RS7142  
 EP type number : 0 412 626 820  
 Governor  
 Governor design. : RSUV325...1150POA358  
 Governor no. : 0 421 829 105

Customer-spec. information  
 Customer : MMM

Engine : D-TBD 234 V6

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8  
 Test lines : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27  
 Prestroke mm : 5.20...5.30  
 : (2.15...5.35)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 3- 2- 5- 4

Phasing : 0-90-120-210-240-330  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800  
 Rack travel in mm : 14.90...15.00  
 Del. quantity cm3/ : 26.0...26.2  
 100 s : (25.7...26.5)  
 Spread cm3 : 0.5  
 100 s : (0.9)  
 2nd speed rpm : 325.0  
 Rack travel in mm : 6.5...6.7  
 Del. quantity cm3/ : 3.0...4.0  
 100 s : (2.7...4.3)  
 Spread cm3 : 0.6  
 100 s : (1.0)  
 3rd speed rpm : 1100  
 Rack travel in mm : 6.90...7.10  
 Del. quantity cm3/ : 2.0...7.0 \*  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.00

## RATED SPEED

1st version  
 Control lever  
 position degrees: 66...74

Testing:  
 1st rack travel in: 13.90  
 Speed rpm : 1190...1200  
 2nd rack travel in: 4.00  
 Speed rpm : 1280...1310  
 4th rack travel in: 1440  
 Speed rpm : 0.30...1.40

## LOW IDLE 1

Control lever  
 position degrees: 29...37  
 Setting point w/out bumper spring

Speed rpm : 325  
Rack travel in mm : 6.1  
Speed rpm : 325  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 440...500

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Rack travel in mm : -  
Contr.-rod trav.mm: 9.40...9.60

Measurement

Speed 1/min : 500  
2nd pressure hPa : 725  
Rack travel in m: 14.70...14.80

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90  
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...240.0

LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Del.quantity cm3/ : 30.0...40.0  
1000 s: (27.0...43.0)  
Spread cm3 : 6.00  
1000 s: (10.00)

Remarks:

:

\* = Element disconnected at idle for  
cylinders 2, 4 and 6.  
Hydraulic latching of starting  
delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

Full-load delivery not known. Set  
according to engine test report.

APPLICATION

Ship

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MMM 14,4 C  
Edition : 18.12.87  
Replaces : 5.6.87  
Test oil : ISO-4113

Combination no. : 0 402 678 805

Injection pump  
Pump designation : PE8P120A520/SRS7143  
EP type number : 0 412 628 820  
Governor  
Governor design. : RSUV325...1150POA358  
Governor no. : 0 421 829 105

Customer-spec. information  
Customer : MMM

Engine : TBD234V8

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 5- 4- 7- 2-  
3- 6

Phasing : 0-30-90-120-180-210-  
270-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800  
Rack travel in mm : 14.90...15.00  
Del. quantity cm3/ : 26.0...26.2  
100 s: (25.7...26.5)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 325.0  
Rack travel in mm : 6.5...6.7  
Del. quantity cm3/ : 3.0...4.0  
100 s: (2.7...4.3)  
Spread cm3 : 0.6  
100 s: (1.0)  
3rd speed rpm : 1100  
Rack travel in mm : 6.90...7.10  
Del. quantity cm3/ : 2.0...7.0 \*  
100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 4.00

## RATED SPEED

1st version  
Control lever  
position degrees: 66...74

Testing:  
1st rack travel in: 13.90  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1280...1310  
4th rack travel in: 1440  
Speed rpm : 0.30...1.40

## LOW IDLE 1

Control lever  
position degrees: 29...37

Setting point w/out bumper spring

Speed rpm : 325  
Rack travel in mm : 6.2  
Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Rack travel in mm : 2.00  
Speed rpm : 440...500

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Rack travel in mm : -  
Contr.-rod trav.mm: 9.40...9.60

Measurement

Speed 1/min : 500  
2nd pressure hPa : 725  
Rack travel in m: 14.70...14.80

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90  
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...240.0  
1000 s: (196.0...244.0)

LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Del.quantity cm3/ : 30.0...40.0  
1000 s: (27.0...43.0)  
Spread cm3 : 6.00  
1000 s: (10.00)

Remarks:

:

\* = Element disconnected at idle for  
cylinders 2, 4, 6 and 8  
Hydraulic latching of starting  
delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

Full-load delivery not known. Set  
according to engine test report.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 28,8 D1  
Edition : 18.12.87  
Replaces : 12.11.87  
Test oil : ISO-4113  
  
Combination no. : 0 402 678 806  
  
Injection pump  
Pump designation : PE8P120A520/SRS7145  
EP type number : 0 412 628 822  
Governor  
Governor design. : RSUV325...1150POA358  
-1  
Governor no. : 0 421 829 106

Customer-spec. information  
Customer : MWM

Engine : TBD234V16

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 2- 3- 4- 7- 8-  
5- 6

Phasing : 0-30-90-120-225-255-  
315-345  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800  
Rack travel in mm : 14.90...15.01  
Del. quantity cm3/ : 26.0...26.2  
100 s: (25.7...26.5)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 325.0  
Rack travel in mm : 6.5...6.7  
Del. quantity cm3/ : 3.0...4.0  
100 s: (2.7...4.3)  
Spread cm3 : 0.6  
100 s: (1.0)  
3rd speed rpm : 1100  
Rack travel in mm : 6.90...7.10  
Del. quantity cm3/ : 2.0...7.0 \*  
100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 4.00

## RATED SPEED

1st version  
Control lever  
position degrees: 66...74

Testing:  
1st rack travel in: 13.90  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1280...1310  
4th rack travel in: 1440  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever

position degrees: 29...37  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6.1  
Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Rack travel in mm : 2.00  
Speed rpm : 440...500

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : -  
Contr.-rod trav.mm: 9.40...9.60

Measurement  
Speed 1/min : 500  
2nd pressure hPa : 725  
Rack travel in m: 14.70...14.80

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.90  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Del.quantity cm3/ : 30.0...40.0  
1000 s: (27.0...43.0)  
Spread cm3 : 6.00  
1000 s: (10.00)

Remarks:

:

\* = Element disconnected at idle for  
cylinders 2, 4, 6 and 8  
Hydraulic latching of starting  
delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

Full-load delivery not known. Set  
according to engine test report.

Pump runs in tandem

APPLICATION  
Ship

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 12,0 B  
Edition : 11.12.87  
Replaces : 10.85  
Test oil : ISO-4113

Combination no. : 0 402 746 805

Injection pump  
Pump designation : PES6P120A720LS7114  
EP type number : 0 412 726 802  
Governor  
Governor design. : RQ300/900PA775  
Governor no. : 0 421 801 319

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 300.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...110

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.40...12.60

Del. quantity cm<sup>3</sup>/ : 22.0...22.2

100 s: (21.7...22.5)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 750

Del. quantity : 220.0...222.0

1000 : (217.0...225.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.20  
Speed rpm : 945...960  
2nd rack travel in: 4.00  
Speed rpm : 990...1020  
4th rack travel in: 1150  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.1

Testing:

Speed rpm : 100  
Minimum rack travel: 6.70  
Speed rpm : 300  
Rack travel in mm : 5.00...5.20  
Rack travel in mm : 2.00  
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 11.20...11.40  
2nd speed rpm : 750  
Rack travel in m: 12.40...12.60  
3rd speed rpm : 850  
Rack travel in m: 11.80...11.90

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Rack travel in mm : -  
Contr.-rod trav.mm: 9.60...9.80

Measurement

Speed 1/min : 500

1st pressure hPa : 350  
Rack travel in m: 10.10...10.30  
2nd pressure hPa : 550  
Rack travel in m: 11.50...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750  
Speed rpm : 900

Del.quantity cm3/ : 197.0...203.0  
1000 s: (194.0...206.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 142.0...149.0  
1000 s: (139.0...152.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 945...960

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 D 3  
 Edition : 06.11.87  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 403 436 104  
 Injection pump  
 Pump designation : PES6MW100/12ORS1143  
 EP type number : 0 413 406 137  
 Governor  
 Governor design. : RQV300...1200MW82-1  
 Governor no. : 0 420 083 153

Customer-spec. information  
 Customer : CUMMINS/US

Engine : 6 CTA-83Q

1st version kW : 179.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 017

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.15...3.25  
 : (3.10...3.30)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1200  
 -----  
 Rack travel in mm : 12.00...12.10  
 -----  
 Del. quantity cm<sup>3</sup>/ : 13.6...13.8  
 -----  
 100 s : (13.4...14.0)  
 -----  
 Spread cm<sup>3</sup> : 0.3  
 -----  
 100 s : (0.6)  
 -----

2nd speed rpm : 350.0  
 Rack travel in mm : 7.1...7.2  
 Del. quantity cm<sup>3</sup>/ : 1.2...1.6  
 100 s : (1.0...1.8)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1250  
 travel mm : 7.60...7.80  
 2nd speed rpm : 1350  
 travel mm : 8.60...9.00  
 3rd speed rpm : 350  
 travel mm : 1.20...1.60  
 4th speed rpm : 800  
 travel mm : 4.90...5.50

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1325  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Aneroid pressure h: 700  
 Del. quantity : 136.0...138.0  
 1000 : (134.0...140.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 42...50

#### Testing:

1st rack travel in: 11.00  
Speed rpm : 1240...1250  
2nd rack travel in: 4.00  
Speed rpm : 1370...1400  
4th rack travel in: 1455  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 11...19  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7.1

#### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 7.10...7.20

#### CONSTANT REGULATION

Speed rpm : 350...500

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200  
Rack travel in m: 12.00...12.10  
2nd speed rpm : 750  
Rack travel in m: 12.50...12.60  
3rd speed rpm : 1000  
Rack travel in m: 12.00...12.10  
4th speed rpm : 900  
Rack travel in m: 12.10...12.30

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : -  
Contr.-rod trav.mm: 11.00...11.10

#### Measurement

Speed 1/min : 500

1st pressure hPa : 390  
Rack travel in m: 11.40...11.50  
2nd pressure hPa : 480

C24

Rack travel in m: 11.90...12.20  
3rd pressure hPa : 700  
Rack travel in m: 12.50...12.60

#### START CUT-OUT

Speed 1/min : 270 (280)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 136.0...138.0  
1000 s: (134.0...140.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 108.0...110.0  
1000 s: (106.0...112.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 205.0...225.0  
1000 s: (202.0...228.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 7.10...7.20  
Del.quantity cm<sup>3</sup>/ : 12.0...16.0  
1000 s: (10.0...18.0)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam  
rotation angle after start of delivery,  
cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 F  
Edition : 19.02.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 403 436 105

Injection pump  
Pump designation : PES6MW100/120RS1169  
EP type number : 0 413 406 153  
Governor  
Governor design. : RQV350...1200MW78-1  
Governor no. : 0 420 083 156

Customer-spec. information  
Customer : CDC

Engine : 6CTA830

1st version kW : 197.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.00...3.10  
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.90...12.00

Del. quantity cm<sup>3</sup>/ : 14.1...14.3

100 s : (13.9...14.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s : (1.4...2.2)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 600

Del. quantity : 141.0...143.0

1000 : (139.0...145.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.90

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1385...1415

4th rack travel in: 1500

Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 10...18  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7

Testing:  
Speed rpm : 100  
Minimum rack trave: 7.50  
Speed rpm : 350  
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION  
Speed rpm : 370...500

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 300  
Contr.-rod trav.mm: 11.00...11.10

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.70...10.80  
2nd pressure hPa : 375  
Rack travel in m: 11.50...11.80  
3rd pressure hPa : 600  
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 600  
Speed rpm : 750  
Del.quantity cm3/ : 137.5...141.5  
1000 s: (135.0...143.0)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 113.5...115.5  
1000 s: (111.5...117.5)  
Spread cm3 : 3.50  
1000 s: (6.00)

BREAKAWAY

1st version

C26

1mm rack travel less than

full load rack tr: 10.90  
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 218.0...228.0  
1000 s: (215.0...231.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.60...5.80  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (14.0...22.0)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5° cam angle  
after start of delivery cyl. 1



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 B  
 Edition : 19.02.88  
 Replaces : 4.85  
 Test oil : ISO-4113  
 Combination no. : 0 403 444 101  
 Injection pump  
 Pump designation : PES4MW100/320RS1102  
 EP type number : 0 413 404 101  
 Governor  
 Governor design. : RQV300...1100MW39  
 Governor no. : 0 420 083 045

Customer-spec. information  
 Customer : VOLVO-BM

Engine : TD45

1st version kW : 85.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness : 6.00X2.00X600  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.5

Del.quantity cm3/ : 0.9...1.3

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1220

travel mm : 9.20...9.60

2nd speed rpm : 1150

travel mm : 8.40...8.60

3rd speed rpm : 420

travel mm : 1.70...2.30

4th speed rpm : 300

travel mm : 1.00...1.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 100.0...102.0

1000 : (98.0...104.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 42...50

Setting point:  
Speed rpm : 1100  
Rack travel in mm : 16.5

Testing:  
1st rack travel in: 11.00  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 7...15  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.4

Testing:  
Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.50  
Rack travel in mm : 2.00  
Speed rpm : 380...440

#### START CUT-OUT

Speed 1/min : 220 (250)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 1000  
Del.quantity cm3/ : 101.0...105.0  
1000 s: (99.0...107.0)  
Spread cm3 : 5.50  
1000 s: (7.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...0.0  
1000 s: (137.0...0.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.50  
Del.quantity cm3/ : 9.5...13.5  
1000 s: (7.0...16.0)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:  
:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 B 2  
 Edition : 19.02.88  
 Replaces : 12.83  
 Test oil : ISO-4113

Combination no. : 0 403 444 102

Injection pump  
 Pump designation : PES4MW100/32ORS1102  
 EP type number : 0 413 404 101  
 Governor  
 Governor design. : RQV300...1150MW39  
 Governor no. : 0 420 083 046

Customer-spec. information  
 Customer : VOLVO-BM

Engine : D45

1st version kW : 60.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00

D01

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

---

Rack travel in mm : 11.00...11.10

---

Del. quantity cm<sup>3</sup>/ : 8.2...8.4  
 100 s : (8.0...8.6)

---

Spread cm<sup>3</sup> : 0.3  
 100 s : (0.6)

---

2nd speed rpm : 300.0  
 Rack travel in mm : 6.5...6.6  
 Del. quantity cm<sup>3</sup>/ : 1.3...1.7  
 100 s : (1.0...1.9)

---

Spread cm<sup>3</sup> : 0.3  
 100 s : (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1220  
 travel mm : 9.20...9.60  
 2nd speed rpm : 1150  
 travel mm : 8.40...8.60  
 3rd speed rpm : 420  
 travel mm : 1.70...2.30  
 4th speed rpm : 300  
 travel mm : 1.00...1.40

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1150  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del. quantity : 82.0...84.0  
 1000 : (80.0...86.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 46...54

Testing:

1st rack travel in: 10.00  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1245...1275  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 7...15  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 100  
Minimum rack travel: 7.20  
Speed rpm : 300  
Rack travel in mm : 5.60...5.70

CONSTANT REGULATION

Speed rpm : 320...520

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000  
Del.quantity cm3/ : 84.0...88.0  
1000 s: (82.0...90.0)  
Spread cm3 : 5.50  
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 0.0...140.0  
1000 s: (0.0...143.0)

LOW IDLE

Speed rpm : 300

D02

Rack travel in mm : 6.50...6.60  
Del.quantity cm3/ : 13.0...17.0  
1000 s: (10.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 A  
Edition : 19.02.88  
Replaces : 03.83  
Test oil : ISO-4113

Combination no. : 0 403 444 103

Injection pump  
Pump designation : PES4MW100/320RS1102  
EP type number : 0 413 404 101  
Governor  
Governor design. : RQV300...1150MW39-1  
Governor no. : 0 420 083 047

Customer-spec. information  
Customer : VOLVO-BM

Engine : TD45

1st version kW : 70.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00

D03

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.00...11.10

Del. quantity cm<sup>3</sup>/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.5

Del. quantity cm<sup>3</sup>/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1220

travel mm : 9.20...9.60

2nd speed rpm : 1150

travel mm : 8.40...8.60

3rd speed rpm : 420

travel mm : 1.70...2.30

4th speed rpm : 300

travel mm : 1.00...1.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 42...50

Testing:

1st rack travel in: 10.00  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1230...1260  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 7...15  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 100  
Minimum rack travel: 7.30  
Speed rpm : 300  
Rack travel in mm : 5.60...5.70

CONSTANT REGULATION

Speed rpm : 320...520

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000  
Del. quantity cm<sup>3</sup>/ : 88.0...92.0  
1000 s: (86.0...94.0)  
Spread cm<sup>3</sup> : 5.50  
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 0.0...140.0  
1000 s: (0.0...143.0)

LOW IDLE

Speed rpm : 300

D04

Rack travel in mm : 6.40...6.50  
Del. quantity cm<sup>3</sup>/ : 13.0...17.0  
1000 s: (10.5...19.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 D  
Edition : 19.02.88  
Replaces : 12.85  
Test oil : ISO-4113

Combination no. : 0 403 444 104

Injection pump  
Pump designation : PES4MW100/320RS1102  
EP type number : 0 413 404 101  
Governor  
Governor design. : RQV300...1200MW39-2  
Governor no. : 0 420 083 059

Customer-spec. information  
Customer : VOLVO-BM

Engine : TD45

1st version kW : 82.5  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

D05

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del. quantity cm<sup>3</sup>/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...6.6

Del. quantity cm<sup>3</sup>/ : 1.3...1.7

100 s: (0.7...1.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1300  
travel mm : 9.50...10.00

2nd speed rpm : 1250  
travel mm : 8.80...9.00

3rd speed rpm : 380  
travel mm : 1.50...2.10

4th speed rpm : 300  
travel mm : 1.00...1.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 100.0...102.0

1000 : (98.0...104.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 44...52

Testing:

1st rack travel in: 11.20  
Speed rpm : 1240...1250  
2nd rack travel in: 4.00  
Speed rpm : 1290...1320  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 8...16  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 100  
Minimum rack travel: 8.10  
Speed rpm : 300  
Rack travel in mm : 6.50...6.60  
Rack travel in mm : 2.00  
Speed rpm : 400...550

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000  
Del. quantity cm<sup>3</sup>/ : 101.0...105.0  
1000 s: (99.0...107.0)  
Spread cm<sup>3</sup> : 5.50  
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20  
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 130.0...140.0  
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.50...6.60

D06

Del. quantity cm<sup>3</sup>/ : 13.0...17.0  
1000 s: (7.0...16.0)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 F  
Edition : 19.02.88  
Replaces : 04.85  
Test oil : ISO-4113  
  
Combination no. : 0 403 444 106  
  
Injection pump  
Pump designation : PES4MW100/32ORS1102  
EP type number : 0 413 404 101  
Governor  
Governor design. : RQV300...1100MW39-4  
Governor no. : 0 420 083 067

Customer-spec. information  
Customer : VOLVO-BM

Engine : D45

1st version kW : 82.5  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.70...11.80

Del. quantity cm<sup>3</sup>/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.5

Del. quantity cm<sup>3</sup>/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1220

travel mm : 9.20...9.60

2nd speed rpm : 1150

travel mm : 8.40...8.60

3rd speed rpm : 420

travel mm : 1.70...2.30

4th speed rpm : 300

travel mm : 1.00...1.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 44...52

Testing:

1st rack travel in: 10.70  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1195...1225  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 8...16  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.4

Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

Speed rpm : 320...650

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000  
Del. quantity cm<sup>3</sup>/ : 96.5...99.5  
1000 s: (95.0...101.0)  
Spread cm<sup>3</sup> : 5.50  
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70  
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 130.0...140.0  
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 300

D08

Rack travel in mm : 6.40...6.50  
Del. quantity cm<sup>3</sup>/ : 13.0...17.0  
1000 s: (10.5...19.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 E  
Edition : 19.02.88  
Replaces : 12.85  
Test oil : ISO-4113

Combination no. : 0 403 444 107

Injection pump  
Pump designation : PES4MW100/32ORS1102  
EP type number : 0 413 404 101  
Governor  
Governor design. : RQV300...1100MW39-5  
Governor no. : 0 420 083 068

Customer-spec. information  
Customer : VOLVO-BM

Engine : D45

1st version kW : 85.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

D09

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.60...12.70

Del. quantity cm<sup>3</sup>/ : 10.9...11.1

100 s: (10.7...11.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.5

Del. quantity cm<sup>3</sup>/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1220

travel mm : 9.20...9.60

2nd speed rpm : 1150

travel mm : 8.40...8.60

3rd speed rpm : 420

travel mm : 1.70...2.30

4th speed rpm : 300

travel mm : 1.00...1.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 44...52

Testing:

1st rack travel in: 11.60  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1210...1240  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 10...18  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.4

Testing:

Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

Speed rpm : 320...450

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000  
Del.quantity cm3/ : 110.0...114.0  
1000 s: (108.0...116.0)  
Spread cm3 : 5.50  
1000 s: (7.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60  
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...140.0  
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 300

D10

Rack travel in mm : 6.40...6.50  
Del.quantity cm3/ : 13.0...17.0  
1000 s: (10.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 K  
 Edition : 19.02.88  
 Replaces : 12.85  
 Test oil : ISO-4113  
 Combination no. : 0 403 444 108  
 Injection pump  
 Pump designation : PES4MW100/32ORS1116  
 EP type number : 0 413 404 102  
 Governor  
 Governor design. : RQV300...1100MW51  
 Governor no. : 0 420 083 072

Customer-spec. information  
 Customer : VOLVO-BM

Engine : TD45-EM

1st version kW : 85.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30  
 : (3.15...3.35)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del. quantity cm<sup>3</sup>/ : 11.6...11.8

100 s: (11.4...12.0)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...5.9

Del. quantity cm<sup>3</sup>/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1220

travel mm : 9.20...9.60

2nd speed rpm : 1150

travel mm : 8.40...8.60

3rd speed rpm : 420

travel mm : 1.70...2.30

4th speed rpm : 300

travel mm : 1.00...1.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 750

Del. quantity : 116.0...118.0

1000 : (114.0...120.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 48...56

Testing:  
1st rack travel in: 11.50  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1200...1230  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 8...16  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.8

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 5.80...5.90

CONSTANT REGULATION  
Speed rpm : 330...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 700  
Rack travel in mm : 265  
Contr.-rod trav.mm: 10.60...10.70

Measurement  
Speed 1/min : 700

1st pressure hPa : 750  
Rack travel in m: 12.50...12.60  
2nd pressure hPa : -  
Rack travel in m: 10.50...10.60  
3rd pressure hPa : 520  
Rack travel in m: 12.40...12.60

#### START CUT-OUT

Speed 1/min : 220 (250)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 750  
Speed rpm : 1000  
Del.quantity cm3/ : 117.0...121.0  
1000 s: (114.5...123.5)

Spread cm3 : 5.50  
Aneroid pressure h: -  
Speed rpm : 700  
Del.quantity cm3/ : 79.0...81.0  
1000 s: (76.5...83.5)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 150.0...160.0  
1000 s: (147.0...163.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.80...5.90  
Del.quantity cm3/ : 13.0...17.0  
1000 s: (10.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 8,8 K 2  
 Edition : 12.02.88  
 Replaces : 04.86  
 Test oil : ISO-4113

Combination no. : 0 403 446 122

Injection pump  
 Pump designation : PES6MM100/320RS1016  
 EP type number : 0 413 406 010  
 Governor  
 Governor design. : RQV300...1400MW25-1  
 Governor no. : 0 420 083 039

Customer-spec. information  
 Customer : RVI

Engine : MIDR06.02-12

1st version kW : 125.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Del. quantity cm<sup>3</sup>/ : 9.1...9.3

100 s : (8.9...9.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...4.9

Del. quantity cm<sup>3</sup>/ : 0.9...1.3

100 s : (0.7...1.6)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm : 8.40...9.20

2nd speed rpm : 1350

travel mm : 7.60...7.80

3rd speed rpm : 500

travel mm : 2.70...3.10

4th speed rpm : 300

travel mm : 1.40...2.20

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Aneroid pressure h: 500

Del. quantity : 91.5...93.5

1000 : (89.5...95.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 58...66

Testing:

1st rack travel in: 10.10  
Speed rpm : 1455...1465  
2nd rack travel in: 4.00  
Speed rpm : 1575...1605  
4th rack travel in: 1700  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 8...16  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.2  
Speed rpm : 300  
Rack travel in mm : 5.90...5.80  
Rack travel in mm : 2.00  
Speed rpm : 490...550  
Speed rpm : 200  
Maximum rack travel: 7.50

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 500

Measurement

Speed 1/min : 500  
Rack travel in m: 9.80...9.70  
2nd pressure hPa : 200  
Rack travel in m: 10.30...10.20  
3rd pressure hPa : 230  
Rack travel in m: 10.90...10.70

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500  
Speed rpm : 900  
Del. quantity cm<sup>3</sup>/ : 87.5...91.5  
1000 s: (85.5...93.5)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 56.0...58.0  
1000 s: (53.5...60.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10  
Speed rpm : 1455...1465

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 94.0...104.0  
1000 s: (91.0...107.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.30...6.20  
Del. quantity cm<sup>3</sup>/ : 9.5...13.5  
1000 s: (7.0...16.0)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:  
Start-of-delivery mark is 8° after  
start of delivery with control-rod  
travel = 10.5 mm.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 8,8 K  
Edition : 12.02.88  
Replaces : 12.85  
Test oil : ISO-4113  
  
Combination no. : 0 403 446 123  
  
Injection pump  
Pump designation : PES6MW100/32ORS1016  
EP type number : 0 413 406 010  
Governor  
Governor design. : RQV300...1300MW25  
Governor no. : 0 420 083 030

Customer-spec. information  
Customer : RVI

Engine : MIDR06.02-12

1st version kW : 125.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10  
: (2.95...3.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1300

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.4

Del.quantity cm3/ : 0.9...1.3

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1475  
travel mm : 8.40...9.20

2nd speed rpm : 1350  
travel mm : 7.60...7.80

3rd speed rpm : 500  
travel mm : 2.70...3.10

4th speed rpm : 300  
travel mm : 1.40...2.20

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 665

Del.quantity : 89.5...91.5

1000 : (87.5...93.5)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 58...66

Testing:

1st rack travel in: 10.10  
Speed rpm : 1370...1380  
2nd rack travel in: 3.90  
Speed rpm : 1495...1525  
4th rack travel in: 1650  
Speed rpm : 1.00...0.00

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.2

Testing:

Speed rpm : 100  
Speed rpm : 300  
Rack travel in mm : 5.90...5.80  
Speed rpm : 200  
Maximum rack travel: 3.60

CONSTANT REGULATION

Speed rpm : 340...600

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 665

Measurement

Speed 1/min : 500  
Rack travel in m: 9.90...9.80  
2nd pressure hPa : 200  
Rack travel in m: 10.30...10.20  
3rd pressure hPa : 230  
Rack travel in m: 10.90...10.70

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 665  
Speed rpm : 900  
Del. quantity cm<sup>3</sup>/ : 85.0...89.0  
1000 s: (83.0...91.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del. quantity cm<sup>3</sup>/ : 56.0...58.0  
1000 s: (54.0...60.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.10  
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 95.0...105.0  
1000 s: (90.0...110.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.80...5.70  
Del. quantity cm<sup>3</sup>/ : 9.5...13.5  
1000 s: (7.0...16.0)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5° cam angle  
after start of delivery cyl. 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 6,1 H  
 Edition : 19.02.88  
 Replaces : 4.86  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 152  
 Injection pump  
 Pump designation : PES6MW100/320RS1119  
 EP type number : 0 413 406 113  
 Governor  
 Governor design. : RQV300...1400MW57  
 Governor no. : 0 420 083 078

Customer-spec. information  
 Customer : VOLVO

Engine : TD 61-3012

1st version kW : 132.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
 : (3.05...3.25)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.0

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1580

travel mm : 9.50...9.90

2nd speed rpm : 1450

travel mm : 8.40...8.60

3rd speed rpm : 550

travel mm : 3.40...4.00

4th speed rpm : 300

travel mm : 1.20...1.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: 1

Speed rpm : 1480

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 58...66

Testing:  
1st rack travel in: 10.60  
Speed rpm : 1440...1450  
2nd rack travel in: 4.00  
Speed rpm : 1595...1625  
4th rack travel in: 1725  
Speed rpm : 0.10...1.00

LOW IDLE 1  
Control lever  
position degrees: 12...20  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.9

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.50  
Speed rpm : 300  
Rack travel in mm : 6.90...7.00

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 550  
Rack travel in mm : 440  
Contr.-rod trav.mm: 11.20...11.30

Measurement  
Speed 1/min : 550

1st pressure hPa : -  
Rack travel in m: 10.10...10.20  
2nd pressure hPa : 300  
Rack travel in m: 10.30...10.60  
3rd pressure hPa : 700  
Rack travel in m: 11.40...11.50

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 1000  
Del.quantity cm3/ : 75.0...77.0  
1000 s: (73.0...79.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 100

#### BREAKAWAY

D18

1st version  
1mm rack travel less than

full load rack tr: 10.60  
Speed rpm : 1440...1450

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (137.0...163.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.90...7.00  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 6,1 G  
 Edition : 19.02.88  
 Replaces : 05.11.86  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 153  
 Injection pump  
 Pump designation : PES6MW100/320RS1119-  
 1  
 EP type number : 0 413 406 114  
 Governor  
 Governor design. : RQV300..1400MW57-1  
 Governor no. : 0 420 083 079

Customer-spec. information  
 Customer : VOLVO

Engine : TD 61..3012

1st version kW : 150.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00...12.10

Del. quantity cm<sup>3</sup>/ : 10.4...10.6

100 s: (10.3...10.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.4

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1580

travel mm : 9.50...9.90

2nd speed rpm : 1450

travel mm : 8.40...8.60

3rd speed rpm : 550

travel mm : 3.40...4.00

4th speed rpm : 300

travel mm : 1.20...1.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: 100

Speed rpm : 1480

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del. quantity : 104.0...106.0

1000 : (103.0...109.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 57...65

Testing:  
1st rack travel in: 11.00  
Speed rpm : 1440...1450  
2nd rack travel in: 4.00  
Speed rpm : 1590...1620  
4th rack travel in: 1700  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 9...17  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.3

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 6.30...6.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 550  
Rack travel in mm : 450  
Contr.-rod trav.mm: 11.80...11.90

Measurement  
Speed 1/min : 550

1st pressure hPa : -  
Rack travel in m: 10.10...10.20  
2nd pressure hPa : 200  
Rack travel in m: 10.30...10.60  
3rd pressure hPa : 700  
Rack travel in m: 12.00...12.10

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 1000  
Del.quantity cm3/ : 75.0...77.0  
1000 s: (73.0...79.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 100

D20

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1440...1450

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (137.0...163.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.30...6.40  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 D 9  
Edition : 12.02.88  
Replaces : 03.04.87  
Test oil : ISO-4113

Combination no. : 0 403 446 158

Injection pump  
Pump designation : PES6MW100/720RS1131  
EP type number : 0 413 406 123  
Governor  
Governor design. : RGV300...13COMW50-1  
Governor no. : 0 420 083 089

Customer-spec. information  
Customer : DB

Engine : OM 366 LA

1st version kW : 150.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 10.05...10.25

100 s: (9.85...10.45)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.2

Del. quantity cm<sup>3</sup>/ : 0.9...1.3

100 s: (0.65...1.55)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...10.20

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.60...2.80

4th speed rpm : 300

travel mm : 1.20...1.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 100.50...102.50

1000 : (98.5...104.50)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 48...56

Setting point:  
Speed rpm : 1340  
Rack travel in mm : 16.5

Testing:  
1st rack travel in: 11.10  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1440...1470  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 11...19  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.1

Testing:  
Speed rpm : 100  
Minimum rack trave: 7.60  
Speed rpm : 300  
Rack travel in mm : 6.10...6.20

CONSTANT REGULATION  
Speed rpm : 350...550

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 170  
Contr.-rod trav.mm: 10.80...10.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.50...10.60  
2nd pressure hPa : 225  
Rack travel in m: 11.70...12.00  
3rd pressure hPa : 700  
Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

D22

Aneroid pressure h: 700  
Speed rpm : 600  
Del.quantity cm3/ : 85.0...89.0  
1000 s: (83.0...91.0)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 54.0...56.0  
1000 s: (52.0...58.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.10  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 71.0...81.0  
1000 s: (68.0...84.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.10...6.20  
Del.quantity cm3/ : 9.00...13.0  
1000 s: (6.5...15.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R 1  
 Edition : 19.02.88  
 Replaces : 11.85  
 Test oil : ISO-4113

Combination no. : 0 403 446 160

Injection pump  
 Pump designation : PES6MW100/32ORS1112  
 EP type number : 0 413 406 108  
 Governor  
 Governor design. : RQV350...1200MW64  
 Governor no. : 0 420 083 090

Customer-spec. information  
 Customer : NAVI-STAR

Engine : DTA-466C

1st version kW : 157.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.80...11.90

Del. quantity cm<sup>3</sup>/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.0

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.80...9.20

2nd speed rpm : 1250

travel mm : 7.90...8.10

3rd speed rpm : 500

travel mm : 2.60...3.20

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del. quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 43...48

Testing:

1st rack travel in: 10.50

Speed rpm : 1260...1280

2nd rack travel in: 4.00

Speed rpm : 1375...1385

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 7...15

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5.9

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

Speed rpm : 350

Rack travel in mm : 5.90...6.00

CONSTANT REGULATION

Speed rpm : 370...450

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 11.80...11.90

2nd speed rpm : 1200

Rack travel in m: 11.50...11.60

3rd speed rpm : 1050

Rack travel in m: 11.60...11.80

4th speed rpm : 1150

Rack travel in m: 11.50...11.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Rack travel in mm : 130

Contr.-rod trav.mm: 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.70...10.80

2nd pressure hPa : 240

Rack travel in m: 11.40...11.70

3rd pressure hPa : 800

D24

Rack travel in m: 11.80...11.90

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 1200

Del.quantity cm3/ : 107.0...111.0

1000 s: (105.0...113.0)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 85.5...87.5

1000 s: (83.5...89.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 1260...1280

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.00

Del.quantity cm3/ : 18.0...22.0

1000 s: (15.5...24.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500 \text{ 1/min}$

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7.6 R 7  
Edition : 19.02.88  
Replaces : 09.03.87  
Test oil : ISO-4113

Combination no. : 0 403 446 161

Injection pump  
Pump designation : PES6MW100/32ORS1134  
EP type number : 0 413 406 125  
Governor  
Governor design. : RQV350...1200MW46-1  
Governor no. : 0 420 083 091

Customer-spec. information  
Customer : NAVI-STAR

Engine : DTA-466C

1st version kW : 172.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.00...3.10  
: (2.95...3.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.80...12.90

Del. quantity cm<sup>3</sup>/ : 12.1...12.3

100 s : (11.9...12.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.6

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350  
travel mm : 8.80...9.20

2nd speed rpm : 1250  
travel mm : 7.90...8.10

3rd speed rpm : 500  
travel mm : 2.60...3.20

4th speed rpm : 350  
travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h : 800

Del. quantity : 121.5...123.5

1000 : (119.5...125.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 45...50

### Testing:

1st rack travel in: 11.80  
Speed rpm : 1250...1260  
2nd rack travel in: 4.00  
Speed rpm : 1395...1405  
4th rack travel in: 1460  
Speed rpm : 0.00...1.00

### LOW IDLE 1

Control lever  
position degrees: 9...17  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.5

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.50...6.60

### CONSTANT REGULATION

Speed rpm : 370...500

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 240  
Contr.-rod trav.mm: 10.40...10.50

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.80...9.90  
2nd pressure hPa : 520  
Rack travel in m: 11.90...12.20  
3rd pressure hPa : 800  
Rack travel in m: 12.80...12.90

### START CUT-OUT

Speed 1/min : 280 (290)

### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 800

D27

Speed rpm : 1200  
Del.quantity cm3/ : 124.5...128.5  
1000 s: (122.5...130.5)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 65.5...67.5  
1000 s: (63.5...69.5)

### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.80  
Speed rpm : 1250...1260

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.50...6.60  
Del.quantity cm3/ : 18.0...22.0  
1000 s: (15.5...24.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

### Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 8,8 K 5  
Edition : 12.02.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 403 446 165

Injection pump  
Pump designation : PES6MW100/32ORS1016  
EP type number : 0 413 406 010  
Governor  
Governor design. : RQV300...1300MW25-S  
Governor no. : 0 420 083 095

Customer-spec. information  
Customer : RVI

Engine : MIDRO6.02-12 F

1st version kW : 125.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.00...3.10  
: (2.95...3.15)  
Rack travel in mm : 9.00...12.00

E01

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1300

Del. quantity cm<sup>3</sup>/ : 8.9...9.1  
100 s : (8.7...9.3)

Spread cm<sup>3</sup> : 0.3  
100 s : (0.6)

2nd speed rpm : 300.0  
Rack travel in mm : 5.3...5.4  
Del. quantity cm<sup>3</sup>/ : 0.9...1.3  
100 s : (0.7...1.6)  
Spread cm<sup>3</sup> : 0.3  
100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1475  
travel mm : 8.40...9.20  
2nd speed rpm : 1350  
travel mm : 7.60...7.80  
3rd speed rpm : 500  
travel mm : 2.70...3.10  
4th speed rpm : 300  
travel mm : 1.40...2.20

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1300  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1300  
Aneroid pressure h : 665  
Del. quantity : 89.5...91.5  
1000 : (87.5...93.5)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 60...68

Testing:

1st rack travel in: 10.10  
Speed rpm : 1370...1380  
2nd rack travel in: 3.90  
Speed rpm : 1495...1525  
4th rack travel in: 1650  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 9...17  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9  
Speed rpm : 300  
Rack travel in mm : 5.90...5.80  
Speed rpm : 200  
Maximum rack travel: 3.60

CONSTANT REGULATION

Speed rpm : 340...600

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 665

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in mm: 9.90...9.80  
2nd pressure hPa : 200  
Rack travel in mm: 10.30...10.20  
3rd pressure hPa : 230  
Rack travel in mm: 10.90...10.70

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 665  
Speed rpm : 900  
Del. quantity cm<sup>3</sup>/ : 86.5...90.5  
1000 s: (84.5...92.5)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del. quantity cm<sup>3</sup>/ : 56.0...58.0  
1000 s: (54.0...60.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.10  
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 95.0...105.0  
1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.80...5.70  
Del. quantity cm<sup>3</sup>/ : 9.5...13.5  
1000 s: (7.0...16.0)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:  
Start-of-delivery mark is at 8° after  
start of delivery.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R11  
 Edition : 19.02.88  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 403 446 174

Injection pump  
 Pump designation : PES6MW100/32ORS1140  
 EP type number : 0 413 406 135  
 Governor  
 Governor design. : RQV350...1200MW46-7  
 Governor no. : 0 420 083 107

Customer-spec. information  
 Customer : NAVI-STAR

Engine : DT-466 C

1st version kW : 134.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

---

Rack travel in mm : 11.40...11.50

---

Del. quantity cm<sup>3</sup>/ : 9.1...9.3

---

100 s : (8.9...9.5)

---

Spread cm<sup>3</sup> : 0.3

---

100 s : (0.6)

---

2nd speed rpm : 350.0  
 Rack travel in mm : 6.6...6.7  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s : (1.3...2.2)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1250  
 travel mm : 7.80...8.00  
 2nd speed rpm : 1340  
 travel mm : 8.80...9.20  
 3rd speed rpm : 500  
 travel mm : 2.60...3.20  
 4th speed rpm : 350  
 travel mm : 1.30...1.80

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1380  
 Rack travel in mm : 6.60...9.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 800  
 Aneroid pressure h : 700  
 Del. quantity : 91.5...93.5  
 1000 : (89.5...95.5)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 45...50

### Testing:

1st rack travel in: 10.40  
Speed rpm : 1240...1260  
2nd rack travel in: 4.00  
Speed rpm : 1360...1370  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 10...18  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.6

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.60...6.70

## CONSTANT REGULATION

Speed rpm : 370...500

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 170  
Contr.-rod trav.mm: 10.10...10.20

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.10...10.20  
2nd pressure hPa : 310  
Rack travel in m: 10.30...10.40  
3rd pressure hPa : 700  
Rack travel in m: 10.70...11.00

## START CUT-OUT

Speed 1/min : 280 (290)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700

E04

Speed rpm : 1200  
Del.quantity cm3/ : 94.0...98.0  
1000 s: (92.0...100.0)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 66.0...68.0  
1000 s: (64.0...70.0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.40  
Speed rpm : 1240...1260

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.60...6.70  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R12  
Edition : 19.02.88  
Replaces : 17.12.86  
Test oil : ISO-4113

Combination no. : 0 403 446 176

Injection pump  
Pump designation : PES6MW100/32ORS1140  
EP type number : 0 413 406 135  
Governor  
Governor design. : RQV350...1200MW72  
Governor no. : 0 420 083 109

Customer-spec. information  
Customer : NAVI-STAR

Engine : DT-466 C

1st version kW : 123.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.5

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1250  
travel mm : 7.80...8.00

2nd speed rpm : 1340  
travel mm : 8.80...9.20

3rd speed rpm : 500  
travel mm : 2.60...3.20

4th speed rpm : 350  
travel mm : 1.30...1.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.60...9.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 46...51

Testing:

1st rack travel in: 10.00

Speed rpm : 1240...1260

2nd rack travel in: 4.00

Speed rpm : 1350...1360

4th rack travel in: 1450

Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.4

Testing:

Speed rpm : 100

Minimum rack travel: 9.00

Speed rpm : 350

Rack travel in mm : 6.40...6.50

## CONSTANT REGULATION

Speed rpm : 370...450

## START CUT-OUT

Speed 1/min : 280 (290)

## FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1200

Del. quantity cm<sup>3</sup>/ : 89.0...93.0

1000 s: (87.0...95.0)

Spread cm<sup>3</sup> : 6.50

1000 s: (7.0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1240...1260

## STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

E07

## LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.40...6.50

Del. quantity cm<sup>3</sup>/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R13  
 Edition : 19.02.88  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 403 446 181

Injection pump  
 Pump designation : PES6MW100/32ORS1134  
 EP type number : 0 413 406 125  
 Governor  
 Governor design. : RQV350...1200MW46-9  
 Governor no. : 0 420 083 116

Customer-spec. information  
 Customer : NAVI-STAR

Engine : DT-466 C

1st version kW : 122.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.00...11.10

Del. quantity cm3/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...6.7

Del. quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 7.80...8.00

2nd speed rpm : 1340

travel mm : 8.80...9.20

3rd speed rpm : 700

travel mm : 4.20...4.80

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1355

Rack travel in mm : 8.00...0.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 46...51

### Testing:

1st rack travel in: 10.00  
Speed rpm : 1265...1285  
2nd rack travel in: 4.00  
Speed rpm : 1365...1375  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

### LOW IDLE 1

Control lever  
position degrees: 12...20  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.6

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.60...6.70

### CONSTANT REGULATION

Speed rpm : 360...540

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 210  
Contr.-rod trav.mm: 10.30...10.40

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.00...10.10  
2nd pressure hPa : 300  
Rack travel in m: 10.60...10.90  
3rd pressure hPa : 700  
Rack travel in m: 11.00...11.10

### START CUT-OUT

Speed 1/min : 220 (210)

### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700

E09

Speed rpm : 1200  
Del.quantity cm3/ : 86.0...90.0  
1000 s: (84.0...92.1)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 58.5...60.5  
1000 s: (56.5...62.5)

### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1265...1285

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.60...6.70  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

### Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R14  
 Edition : 19.02.88  
 Replaces : 31.07.87  
 Test oil : ISO-4113

Combination no. : 0 403 446 183

Injection pump  
 Pump designation : PES6MW100/320RS1112  
 EP type number : 0 413 406 108  
 Governor  
 Governor design. : RQV350...1300MW46-11  
 Governor no. : 0 420 083 120

Customer-spec. information  
 Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 154.5  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.00...11.10

Del. quantity cm3/ : 10.6...10.8

100 s: (10.4...11.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.8

Del. quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.60...9.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 700

Del. quantity : 106.5...108.5

1000 : (104.5...110.5)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 45...50

### Testing:

1st rack travel in: 10.00  
Speed rpm : 1345...1365  
2nd rack travel in: 4.00  
Speed rpm : 1455...1465  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

### LOW IDLE 1

Control lever  
position degrees: 10...18  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.70...5.80

### CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 170  
Contr.-rod trav.mm: 10.20...10.30

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.90...10.00  
2nd pressure hPa : 315  
Rack travel in m: 10.60...10.90  
3rd pressure hPa : 700  
Rack travel in m: 11.00...11.10

### START CUT-OUT

Speed 1/min : 220 (210)

### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700

Speed rpm : 1300  
Del.quantity cm3/ : 108.0...112.0  
1000 s: (106.0...114.0)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 81.5...83.5  
1000 s: (79.5...85.5)

### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1345...1365

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.70...5.80  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

### Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R15  
Edition : 19.02.88  
Replaces : 31.07.87  
Test oil : ISO-4113

Combination no. : 0 403 446 185

Injection pump  
Pump designation : PES6MW100/32ORS1140  
EP type number : 0 413 406 135  
Governor  
Governor design. : RQV350...1200MW72-1  
Governor no. : 0 420 083 122

Customer-spec. information  
Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 134.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.40...11.50

Del. quantity cm<sup>3</sup>/ : 9.1...9.3

100 s : (8.9...9.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...6.7

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s : (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1250  
travel mm : 7.80...8.00

2nd speed rpm : 1340  
travel mm : 8.80...9.20

3rd speed rpm : 500  
travel mm : 2.60...3.20

4th speed rpm : 350  
travel mm : 1.30...1.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del. quantity : 91.5...93.5

1000 : (89.5...95.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 42...47

Testing:  
1st rack travel in: 10.40  
Speed rpm : 1250...1270  
2nd rack travel in: 4.00  
Speed rpm : 1360...1370  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 10...18  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.6

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.60...6.70

## CONSTANT REGULATION

Speed rpm : 370...500

## START CUT-OUT

Speed 1/min : 280 (290)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 1200  
Del. quantity cm<sup>3</sup>/ : 94.0...98.0  
1000 s: (92.0...100.0)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.40  
Speed rpm : 1250...1270

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

E15

## LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.60...6.70  
Del. quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 D 21  
Edition : 19.02.88  
Replaces : 10.08.87  
Test oil : ISO-4113

Combination no. : 0 403 446 187

Injection pump  
Pump designation : PES6MW100/720RS1129  
EP type number : 0 413 406 121  
Governor  
Governor design. : RQV300...1300MW50-2  
Governor no. : 0 420 083 124

Customer-spec. information  
Customer : DB

Engine : OM 366 LA

1st version kW : 150.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.20...11.30

Del. quantity cm<sup>3</sup>/ : 9.4...9.6

100 s : (9.2...9.8)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.6

Del. quantity cm<sup>3</sup>/ : 1.0...1.2

100 s : (0.8...1.6)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1340

travel mm : 8.60...8.80

2nd speed rpm : 1430

travel mm : 9.30...9.70

3rd speed rpm : 300

travel mm : 1.20...1.60

4th speed rpm : 700

travel mm : 3.80...4.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 700

Del. quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 51...59

Testing:  
1st rack travel in: 10.20  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1430...1460  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 15...23  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.5

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.50...5.60

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

CONSTANT REGULATION  
Speed rpm : 320...530

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 400  
Contr.-rod trav.mm: 9.90...10.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.50...9.60  
2nd pressure hPa : 500  
Rack travel in m: 10.80...11.10  
3rd pressure hPa : 700  
Rack travel in m: 11.20...11.30

START CUT-OUT

Speed 1/min : 220 (230)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700

Speed rpm : 600  
Del.quantity cm3/ : 89.0...92.0  
1000 s: (87.0...94.0)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 53.0...55.0  
1000 s: (51.0...57.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.20  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...100.0  
1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.50...5.60  
Del.quantity cm3/ : 10.0...12.0  
1000 s: (8.0...16.0)  
Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 D 28  
Edition : 19.02.88  
Replaces : 10.04.87  
Test oil : ISO-4113

Combination no. : 0 403 446 188

Injection pump  
Pump designation : PES6MW100/72ORS1144  
EP type number : 0 413 406 138  
Governor  
Governor design. : RQV300...1300MW48-4  
Governor no. : 0 420 083 126

Customer-spec. information  
Customer : DB

Engine : OM366A

1st version kW : 100.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)  
Rack travel in mm : 19.00...21.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.10...10.20

Del. quantity cm<sup>3</sup>/ : 7.0...7.2

100 s : (6.8...7.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.3...7.4

Del. quantity cm<sup>3</sup>/ : 1.0...1.4

100 s : (0.9...1.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1340

travel mm : 8.50...8.70

2nd speed rpm : 1450

travel mm : 9.30...9.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 70.0...72.0

1000 : (68.0...74.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version



Control lever  
position degrees: 50...58

Testing:

1st rack travel in: 9.10  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1390...1420  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:

Speed rpm : 100  
Minimum rack travel: 9.30  
Speed rpm : 300  
Rack travel in mm : 7.30...7.40

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300  
Rack travel in m: 10.10...10.20  
2nd speed rpm : 750  
Rack travel in m: 11.10...11.20  
3rd speed rpm : 600  
Rack travel in m: 11.10...11.20  
4th speed rpm : 900  
Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 71.5...74.5  
1000 s: (69.0...77.0)  
Spread cm3 : 5.00  
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 80.0...90.0  
1000 s: (77.0...93.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.30...7.40  
Del.quantity cm3/ : 10.0...14.0  
1000 s: (9.0...15.0)  
Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R22  
Edition : 19.02.88  
Replaces : 10.08.87  
Test oil : ISO-4113

Combination no. : 0 403 446 192

Injection pump  
Pump designation : PES6MW100/32ORS1112  
EP type number : 0 413 406 108  
Governor  
Governor design. : RQV350...1300MW72-2  
Governor no. : 0 420 083 141

Customer-spec. information  
Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.00...10.10

Del. quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.5

Del. quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1510

Rack travel in mm : 6.60...9.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 45...50

### Testing:

1st rack travel in: 9.00  
Speed rpm : 1360...1380  
2nd rack travel in: 4.00  
Speed rpm : 1460...1470  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 10...18  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.4

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.40...6.50

## CONSTANT REGULATION

Speed rpm : 300...450

## START CUT-OUT

Speed 1/min : 220 (280)

## FUEL DELIVERY CHARACTERISTICS

### 1st version

Speed rpm : 1300  
Del. quantity cm<sup>3</sup>/ : 88.0...92.0  
1000 s: (86.0...94.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.00  
Speed rpm : 1360...1380

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

E21

## LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.40...6.50  
Del. quantity cm<sup>3</sup>/ : 19.0...23.0  
1000 s: (16.5...25.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7.6 S  
Edition : 19.02.88  
Replaces : 10.08.87  
Test oil : ISO-4113

Combination no. : 0 403 446 193

Injection pump  
Pump designation : PES6MW100/32ORS1159  
EP type number : 0 413 406 146  
Governor  
Governor design. : RQV350...1300MW72-3  
Governor no. : 0 420 083 142

Customer-spec. information  
Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
(3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.60...10.70

Del. quantity cm3/ : 9.0...9.2

100 s : (8.8...9.4)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.5

Del. quantity cm3/ : 1.6...2.0

100 s : (1.3...2.2)

Spread cm3 : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 7.80...8.00

2nd speed rpm : 1340

travel mm : 8.80...9.20

3rd speed rpm : 500

travel mm : 2.60...3.20

4th speed rpm : 350

travel mm : 1.30...1.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 46...51

Testing:

1st rack travel in: 9.60

Speed rpm : 1370...1390

2nd rack travel in: 4.00

Speed rpm : 1475...1485

4th rack travel in: 1450

Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever

position degrees: 11...19

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.4

Testing:

Speed rpm : 100

Minimum rack travel: 9.00

Speed rpm : 350

Rack travel in mm : 6.40...6.50

## CONSTANT REGULATION

Speed rpm : 370...500

## START CUT-OUT

Speed 1/min : 280 (290)

## FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1200

Del. quantity cm<sup>3</sup>/ : 94.0...98.0

1000 s: (92.0...100.0)

Spread cm<sup>3</sup> : 6.50

1000 s: (7.0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1370...1390

## STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

E23

## LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.40...6.50

Del. quantity cm<sup>3</sup>/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R20  
 Edition : 19.02.88  
 Replaces : 31.07.87  
 Test oil : ISO-4113

Combination no. : 0 403 446 194

Injection pump  
 Pump designation : PES6MM100/32ORS1112  
 EP type number : 0 413 406 108  
 Governor  
 Governor design. : RQV350...1300MW46-12  
 Governor no. : 0 420 083 143

Customer-spec. information  
 Customer : NAVISTAR

Engine : DT-466

1st version kW : 154.5  
 Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.80...10.90

Del. quantity cm3/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.6

Del. quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1510

Rack travel in mm : 6.60...9.20

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 800

Del. quantity : 103.0...105.0

1000 : (101.0...107.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 44...49

Testing:

1st rack travel in: 9.80

Speed rpm : 1365...1385

2nd rack travel in: 4.00

Speed rpm : 1470...1480

4th rack travel in: 1500

Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever

position degrees: 9...17

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5.5

Testing:

Speed rpm : 100

Minimum rack travel: 7.30

Speed rpm : 350

Rack travel in mm : 5.50...5.60

## CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Rack travel in mm : 170

Contr.-rod trav.mm: 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.10...10.20

2nd pressure hPa : 230

Rack travel in m: 10.60...10.90

3rd pressure hPa : 800

Rack travel in m: 10.80...10.90

## START CUT-OUT

Speed 1/min : 280 (290)

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

E25

Speed rpm : 1300

Del.quantity cm3/ : 105.0...109.0

1000 s: (103.0...111.0)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 87.0...89.0

1000 s: (85.0...91.0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 1365...1385

## STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.50...5.60

Del.quantity cm3/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R21  
 Edition : 19.02.88  
 Replaces : 02.11.87  
 Test oil : ISO-4113

Combination no. : 0 403 446 195

Injection pump  
 Pump designation : PES6MW100/32ORS1112  
 EP type number : 0 413 406 108  
 Governor  
 Governor design. : RQV350...1200MW46-13  
 Governor no. : 0 420 083 144

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 180.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.30...12.40

Del. quantity cm<sup>3</sup>/ : 11.7...11.9

100 s : (11.5...12.1)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.4

Del. quantity cm<sup>3</sup>/ : 1.9...2.3

100 s : (1.6...2.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h : 800

Del. quantity : 117.5...119.5

1000 : (115.5...121.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 43...48

### Testing:

1st rack travel in: 11.30  
Speed rpm : 1265...1285  
2nd rack travel in: 4.00  
Speed rpm : 1395...1405  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 12...20  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.3

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.30...6.40

## CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude  
Compensator Test

### 1st version

#### Setting

Speed rpm : 500  
Rack travel in mm : 190  
Contr.-rod trav.mm: 11.20...11.30

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.60...10.70  
2nd pressure hPa : 360  
Rack travel in m: 11.90...12.20  
3rd pressure hPa : 800  
Rack travel in m: 12.30...12.40

## START CUT-OUT

Speed 1/min : 280 (290)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 800

E28

Speed rpm : 1200  
Del.quantity cm3/ : 120.0...124.0  
1000 s: (118.0...126.0)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 86.0...88.0  
1000 s: (84.0...90.0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.30  
Speed rpm : 1265...1285

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.30...6.40  
Del.quantity cm3/ : 19.0...23.0  
1000 s: (16.5...25.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R23  
 Edition : 19.02.88  
 Replaces : 10.08.87  
 Test oil : ISO-4113

Combination no. : 0 403 446 196

Injection pump  
 Pump designation : PES6MM100/320RS1112  
 EP type number : 0 413 406 108  
 Governor  
 Governor design. : RQV350...1200MM46-14  
 Governor no. : 0 420 083 145

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 169.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

---

Rack travel in mm : 11.40...11.50

---

Del. quantity cm<sup>3</sup>/ : 10.4...10.6

---

100 s : (10.2...10.8)

---

Spread cm<sup>3</sup> : 0.3

---

100 s : (0.6)

---

2nd speed rpm : 350.0  
 Rack travel in mm : 6.2...6.3  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s : (1.3...2.2)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350  
 travel mm : 8.30...8.50  
 2nd speed rpm : 1460  
 travel mm : 9.10...9.50  
 3rd speed rpm : 550  
 travel mm : 3.10...3.70  
 4th speed rpm : 350  
 travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1380  
 Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 800  
 Aneroid pressure h : 800  
 Del. quantity : 104.0...106.0  
 1000 : (102.0...108.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 44...49

### Testing:

1st rack travel in: 10.40  
Speed rpm : 1250...1270  
2nd rack travel in: 4.00  
Speed rpm : 1390...1400  
4th rack travel in: 1460  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 12...20  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.2

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.20...6.30

## CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 180  
Contr.-rod trav.mm: 10.80...10.90

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.50...10.60  
2nd pressure hPa : 270  
Rack travel in m: 11.10...11.20  
3rd pressure hPa : 800  
Rack travel in m: 11.40...11.50

## START CUT-OUT

Speed 1/min : 280 (290)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 800

F03

Speed rpm : 1200  
Del.quantity cm3/ : 107.0...111.0  
1000 s: (105.0...113.0)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 84.0...86.0  
1000 s: (82.0...88.0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.40  
Speed rpm : 1250...1270

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.20...6.30  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R24  
Edition : 19.02.88  
Replaces : 02.11.87  
Test oil : ISO-4113

Combination no. : 0 403 446 197

Injection pump  
Pump designation : PES6MW100/320RS1112  
EP type number : 0 413 406 108  
Governor  
Governor design. : RQV350...1200MW46-15  
Governor no. : 0 420 083 146

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 158.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.00...11.10

Del. quantity cm<sup>3</sup>/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.4

Del. quantity cm<sup>3</sup>/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.70...9.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del. quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 43...48

### Testing:

1st rack travel in: 10.00  
Speed rpm : 1245...1265  
2nd rack travel in: 4.00  
Speed rpm : 1380...1390  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

### LOW IDLE 1

Control lever  
position degrees: 10...18  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.3

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.30...6.40

### CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 200  
Contr.-rod trav.mm: 10.70...10.80

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.40...10.50  
2nd pressure hPa : 280  
Rack travel in m: 10.80...11.10  
3rd pressure hPa : 800  
Rack travel in m: 11.00...11.10

### START CUT-OUT

Speed 1/min : 280 (290)

### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 800

F06

Speed rpm : 1200  
Del.quantity cm3/ : 101.0...105.0  
1000 s: (99.0...107.0)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 84.0...86.0  
1000 s: (82.0...88.0)

### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1245...1265

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.30...6.40  
Del.quantity cm3/ : 19.0...23.0  
1000 s: (16.5...25.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.



Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7.6 T  
Edition : 19.02.88  
Replaces : 10.08.87  
Test oil : ISO-4113

Combination no. : 0 403 446 198

Injection pump  
Pump designation : PES6MM100/32ORS1160  
EP type number : 0 413 406 147  
Governor  
Governor design. : RQV350...1200MW46-16  
Governor no. : 0 420 083 147

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 176.4  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.30...12.40

Del. quantity cm<sup>3</sup>/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.6

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.60...9.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del. quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 44...49

### Testing:

1st rack travel in: 11.30  
Speed rpm : 1260...1280  
2nd rack travel in: 4.00  
Speed rpm : 1385...1395  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 12...20  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.5

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 6.50...6.60

## CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 800  
Rack travel in mm : 180  
Contr.-rod trav.mm: 10.30...10.40

### Measurement

Speed 1/min : 800

1st pressure hPa : -  
Rack travel in m: 10.00...10.10  
2nd pressure hPa : 480  
Rack travel in m: 11.80...12.10  
3rd pressure hPa : 800  
Rack travel in m: 12.30...12.40

## START CUT-OUT

Speed 1/min : 280 (290)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 800

F09

Speed rpm : 1200  
Del.quantity cm3/ : 120.0...124.0  
1000 s: (118.0...126.0)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 800  
Del.quantity cm3/ : 80.0...82.0  
1000 s: (78.0...84.0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.30  
Speed rpm : 1260...1280

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.50...6.60  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 T 1  
Edition : 19.02.88  
Replaces : 10.08.87  
Test oil : ISO-4113

Combination no. : 0 403 446 199

Injection pump  
Pump designation : PES6MW100/32ORS1160  
EP type number : 0 413 406 147  
Governor  
Governor design. : RQV350...1200MW46-17  
Governor no. : 0 420 083 148

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 154.5  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.4

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.60...9.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 44...49

Testing:

1st rack travel in: 10.30

Speed rpm : 1260...1280

2nd rack travel in: 4.00

Speed rpm : 1375...1385

4th rack travel in: 1500

Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.3

Testing:

Speed rpm : 100

Minimum rack travel: 9.00

Speed rpm : 350

Rack travel in mm : 6.30...6.40

## CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Rack travel in mm : 190

Contr.-rod trav.mm: 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.20...10.30

2nd pressure hPa : 290

Rack travel in m: 11.10...11.20

3rd pressure hPa : 800

Rack travel in m: 13.30...11.40

## START CUT-OUT

Speed 1/min : 220 (210)

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

F12

Speed rpm : 1200

Del.quantity cm3/ : 104.0...108.0  
1000 s: (102.0...110.0)

Spread cm3 : 6.50  
1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 75.5...77.5  
1000 s: (73.5...79.5)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

Speed rpm : 1260...1280

## STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.30...6.40

Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)

Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM 8,3 C 4  
Edition : 29.01.88  
Replaces : 21.08.87  
Test oil : ISO-4113

Combination no. : 0 403 466 105

Injection pump  
Pump designation : PES6MW100/12ORS1137  
EP type number : 0 413 406 131  
Governor  
Governor design. : RSV400...1100MW2A319  
-4

Governer no. : 0 420 085 080

Customer-spec. information  
Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 171.5  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del. quantity cm3/ : 15.0...15.2

100 s: (14.8...15.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 7.0...7.1

Del. quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 150.5...152.5

1000 : (148.5...154.5)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.90

Speed rpm : 1150...1160

2nd rack travel in: 4.00



Speed rpm : 1200...1230  
4th rack travel in: 1300  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 7.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 400  
Rack travel in mm : 7.00...7.10

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 14.00...14.10  
2nd speed rpm : 1100  
Rack travel in m: 12.30...12.50  
3rd speed rpm : 950  
Rack travel in m: 13.60...14.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1100  
Del.quantity cm<sup>3</sup>/ : 131.0...133.0  
1000 s: (128.0...136.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.90  
Speed rpm : 1150...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 125.0...145.0  
1000 s: (122.0...148.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 7.00...7.10

F15

Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1

Starting/full-load transition speed  
from holding magnet = 500 1/min.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 6,2 F  
Edition : 05.02.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 403 466 108  
Injection pump  
Pump designation : PES6MW100/320/3RS116  
2  
EP type number : 0 413 406 149  
Governor  
Governor design. : RSV325...1200MWOA326  
Governor no. : 0 420 085 085

Customer-spec. information  
Customer : MWM

Engine : TD 226 B-6

1st version kW : 136.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.40...10.50

Del. quantity cm<sup>3</sup>/ : 11.6...11.8

100 s : (11.4...12.0)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 6.6...6.7

Del. quantity cm<sup>3</sup>/ : 0.8...1.2

100 s : (0.6...1.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: 3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h : 700

Del. quantity : 116.5...118.5

1000 : (114.5...120.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 9.40

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1260...1300

4th rack travel in: 1380

Speed rpm : 0.30...1.70

5th rack travel in: 1295...1325

Speed rpm : 4.00

#### LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 6.6

#### Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 325

Rack travel in mm : 6.60...6.70

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 10.40...10.50

2nd speed rpm : 800

Rack travel in m: 10.60...10.70

3rd speed rpm : 500

Rack travel in m: 10.70...10.80

Aneroid/Altitude

Compensator Test

#### 1st version

Setting

Speed rpm : 500

Rack travel in mm : -

Contr.-rod trav.mm: 8.50...8.60

#### Measurement

Speed 1/min : 500

1st pressure hPa : 270

Rack travel in m: 9.10...9.20

2nd pressure hPa : 450

Rack travel in m: 9.90...10.20

3rd pressure hPa : 700

Rack travel in m: 10.60...10.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700

Speed rpm : 800

Del.quantity cm3/ : 113.5...116.5

1000 s: (110.5...118.5)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 62.5...64.5

1000 s: (60.5...66.5)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 90.0...110.0

1000 s: (87.0...113.0)

Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 325

Rack travel in mm : 6.60...6.70

Del.quantity cm3/ : 8.0...12.0

1000 s: (6.0...14.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

Test electrically-released starting quantity (EES) with 12 volts

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 G  
Edition : 29.01.88  
Replaces : 31.10.86  
Test oil : ISO-4113

Combination no. : 0 403 474 001

Injection pump  
Pump designation : PES4MW100/32ORS1102  
EP type number : 0 413 404 101  
Governor  
Governor design. : RSV300...1000MW1A315  
Governor no. : 0 420 085 025

Customer-spec. information  
Customer : VOLVO-BM

Engine : TD45

1st version kW : 84.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.90...12.00

Del. quantity cm<sup>3</sup>/ : 10.9...11.1

100 s : (10.7...11.3)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.7

Del. quantity cm<sup>3</sup>/ : 1.3...1.7

100 s : (1.0...1.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.90

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1055...1085

4th rack travel in: 1200

Speed rpm : 0.30...1.70

## LOW IDLE 1

Control lever

position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.1  
Speed rpm : 300  
Rack travel in mm : 5.10...5.20  
Rack travel in mm : 2.00  
Speed rpm : 360...420

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 1000  
Del.quantity cm<sup>3</sup>/ : 110.0...114.0  
1000 s: 107.5...116.5)  
Spread cm<sup>3</sup> : 5.50  
1000 s: (7.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.90  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...140.0  
1000 s: (127.0...143.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.60...5.70  
Del.quantity cm<sup>3</sup>/ : 13.0...17.0  
1000 s: (10.5...19.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

Set 12.6...12.7 mm control-rod travel  
at lower full-load stop with  
n = 1000 1/min.  
Make full-load setting at upper full-  
load stop in accordance with test  
specifications.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 4,0 A 18  
 Edition : 19.02.88  
 Replaces : 13.05.87  
 Test oil : ISO-4113

Combination no. : 0 403 474 002

Injection pump  
 Pump designation : PES4MW100/72ORS1127  
 EP type number : 0 413 404 103  
 Governor  
 Governor design. : RSV350...1200MWOA322  
 Governor no. : 0 420 085 075

Customer-spec. information  
 Customer : DB

Engine : OM364A

1st version kW : 66.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Rack travel in mm : 9.00...12.00

F20

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.30...11.40

Del. quantity cm3/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.1...7.2

Del. quantity cm3/ : 0.8...1.0

100 s: (0.6...1.4)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 10.30

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1322...1335

3rd rack travel in: 4.00

Speed rpm : 1355...1385

4th rack travel in: 1450

Speed rpm : 0.30...1.70

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.1

#### Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 7.10...7.20

Rack travel in mm : 2.00

Speed rpm : 480...540

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 11.30...11.40

2nd speed rpm : 600

Rack travel in m: 12.10...12.20

3rd speed rpm : 900

Rack travel in m: 11.70...11.80

4th speed rpm : 950

Rack travel in m: 11.50...11.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600

Del.quantity cm3/ : 68.0...70.0

1000 s: (66.0...72.0)

Spread cm3 : 5.00

1000 s: (7.0)

Speed rpm : 900

Del.quantity cm3/ : 77.0...79.0

1000 s: (75.0...81.0)

Spread cm3 : 5.00

1000 s: (7.00)

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 85.0...95.0

1000 s: (82.0...98.0)

#### LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.10...7.20

Del.quantity cm3/ : 8.0...10.0

1000 s: (6.0...14.0)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

;

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7.6 R 5  
Edition : 19.02.88  
Replaces : 11.85  
Test oil : ISO-4113

Combination no. : 0 403 476 024

Injection pump  
Pump designation : PES6MW100/32ORS1121  
EP type number : 0 413 406 115  
Governor  
Governor design. : RSV450...1200MW2A313  
-1

Governer no. : 0 420 085 040

Customer-spec. information  
Customer : NAVI-STAR

Engine : DTI-466C

1st version kW : 175.2  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.7...5.8

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 900

Del.quantity : 122.0...124.0

1000 : (120.0...126.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 45...50

Testing:

1st rack travel in: 10.90

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1320...1330



4th rack travel in: 1400  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 450  
Rack travel in mm : 5.7

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 450  
Rack travel in mm : 5.70...5.80

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200  
Rack travel in m: 11.90...12.00  
2nd speed rpm : 1150  
Rack travel in m: 11.90...12.00  
3rd speed rpm : 800  
Rack travel in m: 12.30...12.40  
4th speed rpm : 600  
Rack travel in m: 12.30...12.50

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 12.30...12.40

#### Measurement

Speed 1/min : 500

1st pressure hPa : 260  
Rack travel in m: 11.10...11.20  
2nd pressure hPa : 540  
Rack travel in m: 11.90...12.00  
3rd pressure hPa : -  
Rack travel in m: 10.70...10.80

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 118.0...120.0  
1000 s: (116.0...122.0)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 91.0...93.0  
1000 s: (89.0...95.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.90  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (137.0...183.0)

#### LOW IDLE

Speed rpm : 450  
Rack travel in mm : 5.70...5.80  
Del.quantity cm<sup>3</sup>/ : 18.0...22.0  
1000 s: (15.5...24.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.00)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

Start-of-delivery mark: stop lever  
25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

Check hydraulic latching of starting  
fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make  
contact, then turn back 1/4 rotation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7.6 R 3  
Edition : 19.02.88  
Replaces : 11.85  
Test oil : ISO-4113

Combination no. : 0 403 476 025

Injection pump  
Pump designation : PES6MW100/32ORS1121  
EP type number : 0 413 406 115  
Governor  
Governor design. : RSV450...1200MW2A313  
-2

Governer no. : 0 420 085 041

Customer-spec. information  
Customer : NAVI-STAR

Engine : DTI-466C

1st version kW : 156.6  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 172...175

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.60...10.70

Del. quantity cm<sup>3</sup>/ : 10.8...11.0

100 s : (10.6...11.2)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 4.8...4.9

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 900

Del. quantity : 108.5...110.5

1000 : (106.5...112.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 49...54

Testing:

1st rack travel in: 8.90

Speed rpm : 1260...1270

2nd rack travel in: 4.00

Speed rpm : 1355...1365

4th rack travel in: 1400  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 21...29  
Setting point w/out bumper spring  
Speed rpm : 450  
Rack travel in mm : 4.8

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 450  
Rack travel in mm : 4.80...4.90

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 9.90...10.00  
2nd speed rpm : 850  
Rack travel in m: 10.60...10.70  
3rd speed rpm : 800  
Rack travel in m: 10.30...10.70

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 10.60...10.70

#### Measurement

Speed 1/min : 500

1st pressure hPa : 320  
Rack travel in m: 9.30...9.40  
2nd pressure hPa : 570  
Rack travel in m: 10.20...10.30  
3rd pressure hPa : -  
Rack travel in m: 9.00...9.10

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 102.5...104.5  
1000 s: (116.0...122.0)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 78.0...80.0  
1000 s: (76.0...82.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1260...1270

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 450  
Rack travel in mm : 4.80...4.90  
Del.quantity cm<sup>3</sup>/ : 18.0...22.0  
1000 s: (15.5...24.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.00)

#### Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

Start-of-delivery mark: stop lever  
25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Check hydraulic latching of starting  
fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make  
contact, then turn back 1/4 rotation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R 2  
 Edition : 19.02.88  
 Replaces : 11.85  
 Test oil : ISO-4113  
 Combination no. : 0 403 476 026  
 Injection pump  
 Pump designation : PES6MW100/32ORS1122  
 EP type number : 0 413 406 116  
 Governor  
 Governor design. : RSV350...1050MW2/312  
 -4  
 Governor no. : 0 420 085 042

Customer-spec. information  
 Customer : NAVI-STAR

Engine : DT 466

1st version kW : 118.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del. quantity cm<sup>3</sup>/ : 10.2...10.4

100 s : (10.0...10.6)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.3

Del. quantity cm<sup>3</sup>/ : 1.3...1.7  
 100 s : (1.0...1.9)

Spread cm<sup>3</sup> : 0.3  
 100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 102.0...104.0

1000 : (100.0...106.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 38...44

Testing:

1st rack travel in: 11.10

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1155...1165

4th rack travel in: 1200

Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever

position degrees: 15...24

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.2

#### Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 6.20...6.30

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.90...12.00

2nd speed rpm : 700

Rack travel in m: 13.00...13.10

3rd speed rpm : 600

Rack travel in m: 13.30...13.60

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1050

Del.quantity cm3/ : 91.0...93.0

1000 s: (88.0...96.0)

Spread cm3 : 6.50

1000 s: (7.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.20...6.30

Del.quantity cm3/ : 13.0...17.0

1000 s: (10.5...19.5)

G01

Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

Start-of-delivery mark: stop lever  
25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Check hydraulic latching of starting  
fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make  
contact, then turn back 1/4 rotation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 P 4  
Edition : 19.02.88  
Replaces : 24.08.87  
Test oil : ISO-4113

Combination no. : 0 403 476 030

Injection pump  
Pump designation : PES6MW100/32ORS1109  
EP type number : 0 413 406 104  
Governor  
Governor design. : RSV350...1250MW2/313  
-3

Governer no. : 0 420 085 049

Customer-spec. information  
Customer : NAVI-STAR

Engine : DTI-466 C

1st version kW : 160.0  
Rated speed : 2500  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Phasing :  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 800  
-----  
Rack travel in mm : 13.40...13.50  
-----  
Del. quantity cm<sup>3</sup>/ : 11.6...11.8  
-----  
100 s: (11.4...12.0)  
-----  
Spread cm<sup>3</sup> : 0.3  
-----  
100 s: (0.6)  
-----

2nd speed rpm : 350.0  
Rack travel in mm : 6.3...6.4  
Del. quantity cm<sup>3</sup>/ : 1.8...2.3  
100 s: (1.6...2.5)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 800  
Aneroid pressure h: 900  
Del. quantity : 116.5...118.5  
1000 : (114.5...120.5)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 52...57

Testing:  
1st rack travel in: 11.20



Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1390...1400  
4th rack travel in: 1470  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 20...28  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 350  
Rack travel in mm : 6.30...6.40

#### SET IDLE AUXILIARY SPRING

Speed rpm : 4.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 800  
Rack travel in m: 13.40...13.50  
2nd speed rpm : 1250  
Rack travel in m: 12.20...12.30  
3rd speed rpm : 840  
Rack travel in m: 13.40...13.50  
4th speed rpm : 1200  
Rack travel in m: 12.20...12.30

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Rack travel in mm : 900  
Contr.-rod trav.mm: 13.40...13.50

##### Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.40...11.50

2nd pressure hPa : 200

Rack travel in m: 11.80...11.90

3rd pressure hPa : 490

Rack travel in m: 12.70...13.00

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 900  
Speed rpm : 1250

Del.quantity cm3/ : 105.0...107.0  
1000 s: (103.0...109.0)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 82.0...84.0  
1000 s: (79.0...87.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 11.20  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.30...6.40  
Del.quantity cm3/ : 18.0...23.0  
1000 s: (16.5...25.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

#### Remarks:

:  
Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PEN 6,1 M  
 Edition : 12.02.88  
 Replaces : 11.85  
 Test oil : ISO-4113  
 Combination no. : 0 403 476 043A  
 Injection pump  
 Pump designation : PES6MW100/320RS1132  
 EP type number : 0 413 406 124  
 Governor  
 Governor design. : RSV300...1050MW4A308  
 -2  
 Governor no. : 0 420 085 050

Customer-spec. information  
 Customer : VOLVO-PENTA

Engine : TD 61 ACE

1st version kW : 112.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.90...3.00  
 : (2.85...3.05)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.80...10.90

Del. quantity cm<sup>3</sup>/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.2

Del. quantity cm<sup>3</sup>/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 65...73

Testing:

1st rack travel in: 9.80

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1250

Speed rpm : 0.30...1.70

## LOW IDLE 1

Control lever  
position degrees: 25...33  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:  
Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.60...5.70

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.80  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 100.0...110.0  
1000 s: (107.0...113.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.10...6.20  
Del. quantity cm3/ : 12.0...16.0  
1000 s: (9.5...18.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R 4  
Edition : 19.02.88  
Replaces : 12.09.86  
Test oil : ISO-4113

Combination no. : 0 403 476 047

Injection pump  
Pump designation : PES6MW100/32ORS1121  
EP type number : 0 413 406 115  
Governor  
Governor design. : RSV500...1250MW2/312  
-5  
Governor no. : 0 420 085 058

Customer-spec. information  
Customer : NAVI-STAR

Engine : DTI-466C

1st version kW : 167.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 11.30...11.40

Del. quantity cm<sup>3</sup>/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 5.4...5.5

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del. quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 50...55

Testing:

1st rack travel in: 10.30

Speed rpm : 1315...1325

2nd rack travel in: 4.00

Speed rpm : 1370...1380

4th rack travel in: 1400

Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

Speed rpm : 500

Rack travel in mm : 5.4

#### Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 500

Rack travel in mm : 5.40...5.50

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1250

Del. quantity cm<sup>3</sup>/ : 110.5...114.5

1000 s: (108.5...116.5)

Spread cm<sup>3</sup> : 6.50

1000 s: (7.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.30

Speed rpm : 1315...1325

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 500

Rack travel in mm : 5.40...5.50

Del. quantity cm<sup>3</sup>/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.00)

Remarks:

:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

Start-of-delivery mark: stop lever  
25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Check hydraulic latching of starting  
fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make  
contact, then turn back 1/4 rotation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R  
Edition : 19.02.88  
Replaces : 24.08.87  
Test oil : ISO-4113

Combination no. : 0 403 476 050

Injection pump  
Pump designation : PES6MW100/32ORS1121  
EP type number : 0 413 406 115  
Governor  
Governor design. : RSV500...1250MW2A312  
-6  
Governor no. : 0 420 085 063

Customer-spec. information  
Customer : NAVI-STAR

Engine : DT-466 C

1st version kW : 160.3  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

BEGINNING OF DELIVERY  
Test pressure, bar: 30...32

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Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 11.80...11.90

Del. quantity cm<sup>3</sup>/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 6.2...6.3

Del. quantity cm<sup>3</sup>/ : 1.8...2.2  
100 s: (1.3...2.6)

Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del. quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 49...54

Testing:

1st rack travel in: 10.60

Speed rpm : 1295...1305

2nd rack travel in: 4.00

Speed rpm : 1365...1375

4th rack travel in: 1400

Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring

Speed rpm : 500

Rack travel in mm : 6.2

#### Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 500

Rack travel in mm : 6.20...6.30

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1250

Del. quantity cm<sup>3</sup>/ : 107.0...111.0

1000 s: (105.0...113.0)

Spread cm<sup>3</sup> : 6.50

1000 s: (7.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1295...1305

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

#### HIGH IDLE

##### 1st version

Speed rpm : 1365

Del. quantity cm<sup>3</sup>/ : 15.0...23.0

1000 s: (14.0...24.0)

#### LOW IDLE

Speed rpm : 500

Rack travel in mm : 6.20...6.30

Del. quantity cm<sup>3</sup>/ : 18.0...22.0

1000 s: (13.5...26.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.00)

#### Remarks:

:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

Start-of-delivery mark: stop lever 25° toward shutoff: control-rod travel = 9...12 mm. (Free travel of stop lever must have been overcome beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R19  
Edition : 19.02.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 403 476 051

Injection pump  
Pump designation : PES6MW100/320RS1121  
EP type number : 0 413 406 115  
Governor  
Governor design. : RSV350...1200MW2A321  
Governor no. : 0 420 085 064

Customer-spec. information  
Customer : NAVI-STAR

Engine : DT-466 C

1st version kW : 93.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 6.8...7.0

100 s: (6.6...7.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.6

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del.quantity : 68.0...70.0

1000 : (66.0...72.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 54...59

## Testing:

1st rack travel in: 7.60

Speed rpm : 1240...1260

2nd rack travel in: 4.00

Speed rpm : 1295...1305

4th rack travel in: 1400

Speed rpm : 0.30...1.70



#### LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.5

#### Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 350

Rack travel in mm : 6.50...6.60

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 9.50...9.60

2nd speed rpm : 1200

Rack travel in m: 8.60...8.70

3rd speed rpm : 1150

Rack travel in m: 8.80...8.90

4th speed rpm : 1050

Rack travel in m: 9.00...9.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1200

Del.quantity cm<sup>3</sup>/ : 59.5...61.5

1000 s: (56.5...64.0)

Spread cm<sup>3</sup> : 6.50

1000 s: (7.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.60

Speed rpm : 1240...1260

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

#### HIGH IDLE

##### 1st version

Speed rpm : 1305

Del.quantity cm<sup>3</sup>/ : 12.0...20.0  
1000 s: (11.0...20.0)

#### LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.50...6.60

Del.quantity cm<sup>3</sup>/ : 18.0...22.0

1000 s: (15.5...24.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.00)

#### Remarks:

:  
Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

Start-of-delivery mark: stop lever  
25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Position idle auxiliary spring to make  
contact, then turn back 1/4 rotation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 R18  
 Edition : 19.02.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 403 476 053  
 Injection pump  
 Pump designation : PES6MW100/32ORS1121  
 EP type number : 0 413 406 115  
 Governor  
 Governor design. : RSV350...1050MW2A321  
 -2  
 Governor no. : 0 420 085 066

Customer-spec. information  
 Customer : NAVI-STAR

Engine : DT-466 C

1st version kW : 129.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

BEGINNING OF DELIVERY  
 Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.70...11.80

Del. quantity cm<sup>3</sup>/ : 10.5...10.7

100 s: (10.3...10.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.3

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 16.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 105.5...107.5

1000 : (103.5...109.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 40...45

Testing:

1st rack travel in: 9.70

Speed rpm : 1090...1110

2nd rack travel in: 4.00  
Speed rpm : 1155...1165  
4th rack travel in: 1400  
Speed rpm : 0.30...1.70

#### LOW IDLE †

Control lever  
position degrees: 14...22  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.2

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 350  
Rack travel in mm : 6.20...6.30

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700  
Rack travel in m: 11.70...11.80  
2nd speed rpm : 1050  
Rack travel in m: 10.70...10.80  
3rd speed rpm : 1000  
Rack travel in m: 10.70...10.90  
4th speed rpm : 900  
Rack travel in m: 11.00...11.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 94.5...96.5  
1000 s: (91.0...100.0)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.70  
Speed rpm : 1090...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 19.00...21.00

#### HIGH IDLE

G13

##### 1st version

Speed rpm : 1155  
Del.quantity cm<sup>3</sup>/ : 12.0...20.0  
1000 s: (11.0...21.0)

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.20...6.30  
Del.quantity cm<sup>3</sup>/ : 18.0...22.0  
1000 s: (15.5...24.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.00)

#### Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

Start-of-delivery mark: stop lever  
25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Position idle auxiliary spring to make  
contact, then turn back 1/4 rotation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 D 32  
 Edition : 05.02.88  
 Replaces : 05.06.87  
 Test oil : ISO-4113  
 Combination no. : 0 403 476 055  
 Injection pump  
 Pump designation : PES6MW100/720RS1144  
 EP type number : 0 413 406 138  
 Governor  
 Governor design. : RSV350...1200MW1A316  
 -3  
 Governor no. : 0 420 085 077

Customer-spec. information  
 Customer : DB

Engine : OM366A

1st version kW : 92.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.60...9.70

Del. quantity cm<sup>3</sup>/ : 6.6...6.8

100 s : (6.4...7.0)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.9

Del. quantity cm<sup>3</sup>/ : 1.0...1.2

100 s : (0.7...1.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 15.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 66.0...68.0

1000 : (64.0...70.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 8.60

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1263...1276

3rd rack travel in: 8.60

Speed rpm : 1240...1255  
4th rack travel in: 1450  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.6

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 350  
Rack travel in mm : 6.30...6.90  
Rack travel in mm : 2.00  
Speed rpm : 415...475

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 9.60...9.70  
2nd speed rpm : 800  
Rack travel in m: 10.50...10.60  
3rd speed rpm : 950  
Rack travel in m: 9.90...10.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 68.0...70.0  
1000 s: (66.0...72.0)  
Spread cm3 : 5.00  
1000 s: (7.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.60  
Speed rpm : 1240...1245

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 80.0...90.0  
1000 s: (77.0...93.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.30...6.90  
Del.quantity cm3/ : 10.0...12.0  
1000 s: (7.0...15.0)

Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 D 33  
 Edition : 05.02.88  
 Replaces : 31.07.87  
 Test oil : ISO-4113

Combination no. : 0 403 476 056

Injection pump  
 Pump designation : PES6MW100/72ORS1144  
 EP type number : 0 413 406 138  
 Governor  
 Governor design. : RSV350...1200MW1A316  
 -4  
 Governor no. : 0 420 085 078

Customer-spec. information  
 Customer : DB

Engine : OM366A

1st version kW : 100.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.20...10.30

Del. quantity cm<sup>3</sup>/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.1...6.7

Del. quantity cm<sup>3</sup>/ : 1.0...1.2

100 s: (0.7...1.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 58...66

## Testing:

1st rack travel in: 9.20

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1271...1284

4th rack travel in: 1450

Speed rpm : 0.30...1.70  
5th rack travel in: 1240...1255  
Speed rpm : 9.20

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.4

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 350  
Rack travel in mm : 6.10...6.70  
Rack travel in mm : 2.00  
Speed rpm : 415...475

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 800  
Rack travel in m: 11.10...11.20  
3rd speed rpm : 900  
Rack travel in m: 11.00...11.20  
4th speed rpm : 1050  
Rack travel in m: 10.50...10.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 76.0...78.0  
1000 s: (74.0...81.0)  
Spread cm3 : 5.00  
1000 s: (7.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 80.0...90.0  
1000 s: (77.0...93.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.10...6.70  
Del.quantity cm3/ : 10.0...12.0  
1000 s: (7.0...15.0)

Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 6,1 M  
Edition : 29.01.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 403 476 060  
  
Injection pump  
Pump designation : PES6MW100/72ORS1161  
EP type number : 0 413 400 148  
Governor  
Governor design. : RSV325...1150MWSA327  
Governor no. : 0 420 085 084

Customer-spec. information  
Customer : KHD

Engine : BF6L913C

1st version kW : 134.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.45...3.55  
: (3.40...3.60)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.80...12.90

Del. quantity cm<sup>3</sup>/ : 12.3...12.5

100 s : (12.1...12.7)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 4.9...5.0

Del. quantity cm<sup>3</sup>/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del. quantity : 123.0...125.0

1000 : (121.0...127.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.80

Speed rpm : 1200...1210

2nd rack travel in: 4.00

Speed rpm : 1245...1275

4th rack travel in: 1440

Speed rpm : 0.30...1.70

## LOW IDLE 1



Control lever  
position degrees: 18...25  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 4.7

Testing:  
Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 325  
Rack travel in mm : 4.70...4.80  
Rack travel in mm : 2.00  
Speed rpm : 455...515

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.80...12.90  
2nd speed rpm : 800  
Rack travel in m: 13.20...13.30  
3rd speed rpm : 900  
Rack travel in m: 13.00...13.20  
4th speed rpm : 1000  
Rack travel in m: 12.80...13.00

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Rack travel in mm : 500  
Contr.-rod trav.mm: 11.60...11.70

Measurement  
Speed 1/min : 500

1st pressure hPa : 1000  
Rack travel in m: 13.20...13.30  
2nd pressure hPa : -  
Rack travel in m: 10.50...10.60  
3rd pressure hPa : 650  
Rack travel in m: 12.30...12.60

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm3/ : 125.0...129.0  
1000 s: (123.0...131.0)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 74.0...76.0  
1000 s: (72.0...78.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.80  
Speed rpm : 1200...1210

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 4.90...5.00  
Del.quantity cm3/ : 10.0...14.0  
1000 s: (7.5...16.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,8 A  
 Edition : 29.02.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 083 259  
 Injection pump  
 Pump designation : PES6A90C41ORS2308  
 Governor  
 Governor design. : RQV300...1425AB740L

Customer-spec. information  
 Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

1st version kW : 95,7  
 Rated speed : 2850

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

G20

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00...9,10  
 Del. quantity cm<sup>3</sup>/ : 4,5...5,0  
 100 s : (4,3...5,2)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (0,5)  
 2nd speed rpm : 1000  
 Rack travel in mm : 11,90...12,10  
 Del. quantity cm<sup>3</sup>/ : 7,3...8,2  
 100 s : (7,0...8,5)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (0,55)  
 3rd speed rpm : 200  
 Rack travel in mm : 8,90...9,10  
 Del. quantity cm<sup>3</sup>/ : 2,05...2,85  
 100 s : (1,7...3,2)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,45)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1400  
 Del. quantity : 61,0...63,0  
 1000 : (59,5...64,5)  
 Spread cm<sup>3</sup> : 3,0  
 1000 : (5,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 62...70

Testing:  
 1st rack travel in: 17,70  
 Speed rpm : 1425  
 2nd rack travel in: 16,70  
 Speed rpm : 1465...1475  
 3rd rack travel in: 1,50...1,80  
 Speed rpm : 1650  
 4th rack travel in: 1780  
 Speed rpm : 0,00...1,00

LOW IDLE 1  
 Control lever  
 position degrees: 6...14

Testing:  
 Speed rpm : 100  
 Minimum rack trave: 6,60

Speed rpm : 250  
Rack travel in mm : 5,50...7,00  
Rack travel in mm : 5,00  
Speed rpm : 330...370  
Speed rpm : 770  
Maximum rack trave: 1,00

#### START CUT-OUT

Speed 1/min : 220

#### BREAKAWAY

1st version  
Speed rpm : 1425...1450

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 13,7...14,3

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MM 2,6 A  
 Edition : 29.02.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 083 422  
 Injection pump  
 Pump designation : PES3A80D320/3RS1264  
 Governor  
 Governor design. : RSV350...1200A2B627R

Customer-spec. information  
 Customer : MM

Engine : D 225-3

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
 : (2,15...2,35)  
 Rack travel in mm : 10,50  
 Firing order : 1-2-3

Phasing : 0-120-240  
 Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00...9,10  
 Del. quantity cm<sup>3</sup>/ : 4,35...4,55  
 100 s : (4,15...4,75)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,40)

2nd speed rpm : 1000  
 Rack travel in mm : 14,9...15,1  
 Del. quantity cm<sup>3</sup>/ : 10,65...11,15  
 100 s : (10,35...11,45)  
 Spread cm<sup>3</sup> : 0,35  
 100 s : (0,45)  
 3rd speed rpm : 200  
 Rack travel in mm : 8,90...9,10  
 Del. quantity cm<sup>3</sup>/ : 2,95...3,75  
 100 s : (2,7...4,0)  
 Spread cm<sup>3</sup> : 0,20  
 100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1180  
 Del. quantity : 50,5...51,5  
 1000 : (49,0...53,0)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 46...54

Testing:  
 1st rack travel in: 15,00  
 Speed rpm : 1240...1250  
 3rd rack travel in: 4,40...7,00  
 Speed rpm : 1340

4th rack travel in: 1500  
Speed rpm : 0,30...1,50

#### LOW IDLE 1

Control lever  
position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 5,70...6,30  
Rack travel in mm : 2,30  
Speed rpm : 480...520  
Speed rpm : 650  
Maximum rack trave: 1,50

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1180  
Rack travel in m: -  
2nd speed rpm : 500  
Rack travel in m: -  
3rd speed rpm : 400  
Rack travel in m: +(1,2...1,8)

#### BREAKAWAY

1st version  
Speed rpm : 1210...1230

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 9,0

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5,90...6,10

Remarks:

#### APPLICATION

Navy

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MM 2,6 A 1  
Edition : 29.02.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 9 400 083 423

Injection pump  
Pump designation : PES3A800320/3RS1264  
Governor  
Governor design. : RSV350...900A7B627R

Customer-spec. information  
Customer : MM

Engine : D-225-3

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
: (2,15...2,35)

Rack travel in mm : 10,50

Firing order : 1-2-3

Phasing : 0-120-240  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del. quantity cm3/ : 4,35...4,55

100 s: (4,15...4,75)

Spread cm3 : 0,25

100 s: (0,40)

2nd speed rpm : 1000

Rack travel in mm : 14,90...15,10

Del. quantity cm3/ : 10,65...11,15

100 s: (10,45...11,35)

Spread cm3 : 0,25

100 s: (0,40)

3rd speed rpm : 200

Rack travel in mm : 8,90...9,10

Del. quantity cm3/ : 2,95...3,75

100 s: (2,8...3,9)

Spread cm3 : 0,20

100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 880

Del. quantity : 51,5...52,5

1000 : (50,0...54,0)

Spread cm3 : 2,0

1000 : (3,5)

## RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 15,00

Speed rpm : 940...950

3rd rack travel in: 4,40...7,20

Speed rpm : 960

4th rack travel in: 1050  
Speed rpm : 0,30...1,50

#### LOW IDLE 1

Control lever  
position degrees: 21...29  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 5,70...6,30  
Rack travel in mm : 2,80  
Speed rpm : 430...470  
Speed rpm : 550  
Maximum rack trave: 1,50

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 880  
Rack travel in m: -  
2nd speed rpm : 500  
Rack travel in m: -  
3rd speed rpm : 400  
Rack travel in m: +(1,20...1,80)

#### BREAKAWAY

1st version  
Speed rpm : 900...920

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 9,0

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5,90...6,10

Remarks:

#### APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 3,4 B  
 Edition : 29.02.88  
 Replaces : -  
 Test oil : ISO 4113  
 Combination no. : 9 400 083 426  
 Injection pump  
 Pump designation : PES4A800320/3RS1265  
 Governor  
 Governor design. : RSV350...1200A2B627R

Customer-spec. information  
 Customer : MWM

Engine : D 225-4

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
 : (2,15...2,35)  
 Rack travel in mm : 10,50  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00...9,10  
 Del. quantity cm<sup>3</sup>/ : 4,35...4,55  
 100 s: (4,15...4,75)  
 Spread cm<sup>3</sup> : 0,25  
 100 s: (0,40)

2nd speed rpm : 1000  
 Rack travel in mm : 14,90...15,10  
 Del. quantity cm<sup>3</sup>/ : 10,65...11,15  
 100 s: (10,35...11,45)  
 Spread cm<sup>3</sup> : 0,35  
 100 s: (0,45)  
 3rd speed rpm : 200  
 Rack travel in mm : 8,90...9,10  
 Del. quantity cm<sup>3</sup>/ : 2,95...3,75  
 100 s: (2,7...4,0)  
 Spread cm<sup>3</sup> : 0,20  
 100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1180  
 Del. quantity : 50,5...51,5  
 1000 : (49,0...53,0)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 46...54

Testing:  
 1st rack travel in: 16,00  
 Speed rpm : 1240...1250  
 3rd rack travel in: 4,40...7,00  
 Speed rpm : 1340



4th rack travel in: 1500  
Speed rpm : 0,30...1,50

#### LOW IDLE 1

Control lever  
position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 5,7...6,3  
Rack travel in mm : 2,3  
Speed rpm : 480...520  
Speed rpm : 650  
Maximum rack trave: 1,5

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1180  
Rack travel in m: -  
2nd speed rpm : 500  
Rack travel in m: -  
3rd speed rpm : 400  
Rack travel in m: +(1,20...1,80)

#### BREAKAWAY

1st version  
Speed rpm : 1210...1230

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 9,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5,90...6,10

Remarks:

#### APPLICATION

Navy

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 3,4 B 1  
Edition : 01.03.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 9 400 083 427  
  
Injection pump  
Pump designation : PES4A80D320/3RS1265  
Governor  
Governor design. : RSV350...900A7B627R

Customer-spec. information  
Customer : MWM

Engine : D-225-4

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
: (2,15...2,35)  
Rack travel in mm : 10,50  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9,00...9,10  
Del. quantity cm<sup>3</sup>/ : 4,35...4,55  
100 s: (4,15...4,75)  
Spread cm<sup>3</sup> : 0,25  
100 s: (0,40)

2nd speed rpm : 1000  
Rack travel in mm : 14,90...15,10  
Del. quantity cm<sup>3</sup>/ : 10,65...11,15  
100 s: (10,35...11,45)  
Spread cm<sup>3</sup> : 0,35  
100 s: (0,45)  
3rd speed rpm : 200  
Rack travel in mm : 8,90...9,10  
Del. quantity cm<sup>3</sup>/ : 2,95...3,75  
100 s: (2,7...4,0)  
Spread cm<sup>3</sup> : 0,20  
100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 880  
Del. quantity : 51,5...52,5  
1000 : (49,0...53,0)  
Spread cm<sup>3</sup> : 2,5  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 52...60

Testing:  
1st rack travel in: 16,00  
Speed rpm : 940...950  
3rd rack travel in: 960  
Speed rpm : 4,40...7,20

4th rack travel in: 1050  
Speed rpm : 0,30...1,50

#### LOW IDLE 1

Control lever  
position degrees: 21...29  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 5,70...6,30  
Rack travel in mm : 2,80  
Speed rpm : 430...470  
Speed rpm : 550  
Maximum rack trave: 1,50

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 880  
Rack travel in m: -  
2nd speed rpm : 500  
Rack travel in m: -  
3rd speed rpm : 450  
Rack travel in m: +(1,20...1,80)

#### BREAKAWAY

1st version  
Speed rpm : 900...920

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 9,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5,90...6,10

Remarks:

#### APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,1 A  
Edition : 01.03.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 9 400 083 429  
Injection pump  
Pump designation : PES6A80D320/3RS1261  
Governor  
Governor design. : RSV350...900A7B627R

Customer-spec. information  
Customer : MWM

Engine : D-225-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
: (2,15...2,35)  
Rack travel in mm : 10,50  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

H02

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm<sup>3</sup>/ : 4,35...4,55  
100 s : (4,15...4,75)  
Spread cm<sup>3</sup> : 0,25  
100 s : (0,40)  
2nd speed rpm : 1000  
Rack travel in mm : 14,90...15,10  
Del. quantity cm<sup>3</sup>/ : 10,65...11,15  
100 s : (10,35...11,45)  
Spread cm<sup>3</sup> : 0,35  
100 s : (0,45)  
3rd speed rpm : 200  
Rack travel in mm : 8,90...9,10  
Del. quantity cm<sup>3</sup>/ : 2,95...3,75  
100 s : (2,7...4,0)  
Spread cm<sup>3</sup> : 0,20  
100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 880  
Del. quantity : 51,5...52,5  
1000 : (49,0...53,0)  
Spread cm<sup>3</sup> : 2,5  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 52...60

Testing:  
1st rack travel in: 16,00  
Speed rpm : 940...950  
3rd rack travel in: 4,40...7,20  
Speed rpm : 960

4th rack travel in: 1050  
Speed rpm : 0,30...1,50

#### LOW IDLE 1

Control lever  
position degrees: 21...29  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 5,70...6,30  
Rack travel in mm : 2,80  
Speed rpm : 450  
Speed rpm : 550  
Maximum rack trave: 1,50

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 880  
Rack travel in m: -  
2nd speed rpm : 500  
Rack travel in m: -  
3rd speed rpm : 450  
Rack travel in m: +(1,20...1,80)

#### BREAKAWAY

1st version  
Speed rpm : 900...920

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 9,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5,90...6,10

Remarks:

#### APPLICATION

Governor setting according to  
VDT-I-420/112.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,1 A 1  
Edition : 01.03.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 9 400 083 430  
Injection pump  
Pump designation : PES6A80D320/3RS1261  
Governor  
Governor design. : RSV350...1200A2B627R

Customer-spec. information  
Customer : MWM

Engine : D 225-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
                  : (2,15...2,35)  
Rack travel in mm : 10,50  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1000  
-----  
Rack travel in mm : 9,00...9,10  
-----  
Del. quantity cm<sup>3</sup>/ : 4,35...4,55  
-----  
100 s : (4,15...4,75)  
-----  
Spread cm<sup>3</sup> : 0,25  
-----  
100 s : (0,40)  
-----  
2nd speed rpm : 1000  
Rack travel in mm : 14,90...15,10  
Del. quantity cm<sup>3</sup>/ : 10,65...11,15  
100 s : (10,35...11,45)  
-----  
Spread cm<sup>3</sup> : 0,35  
100 s : (0,45)  
-----  
3rd speed rpm : 200  
Rack travel in mm : 8,90...9,10  
Del. quantity cm<sup>3</sup>/ : 2,95...3,75  
100 s : (2,7...4,0)  
-----  
Spread cm<sup>3</sup> : 0,20  
100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1180  
Del. quantity : 50,50...51,50  
1000 : (48,50...53,50)  
-----  
Spread cm<sup>3</sup> : 2,5  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 46...54

Testing:  
1st rack travel in: 16,00  
Speed rpm : 1240...1250  
3rd rack travel in: 4,40...7,00  
Speed rpm : 1340

4th rack travel in: 1500  
Speed rpm : 0,30...1,50

#### LOW IDLE 1

Control lever  
position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 5,70...6,30  
Rack travel in mm : 2,30  
Speed rpm : 480...520  
Speed rpm : 650  
Maximum rack trave: 1,50

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1180  
Rack travel in m: -  
2nd speed rpm : 500  
Rack travel in m: -  
3rd speed rpm : 400  
Rack travel in m: +(1,20...1,80)

#### BREAKAWAY

1st version  
Speed rpm : 1210...1230

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 9,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5,90...6,10

Remarks:

#### APPLICATION

Navy

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 N 15  
 Edition : 02.03.88  
 Replaces : -  
 Test oil : ISO 4113  
 Combination no. : 9 400 084 239  
 Injection pump  
 Pump designation : PES6A90D41ORS2239  
 Governor  
 Governor design. : RQV300...1425AB758L

Customer-spec. information  
 Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

1st version kW : 95,70  
 Rated speed : 1850

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1,0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

H06

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00...9,10  
 Del. quantity cm<sup>3</sup>/ : 4,5...5,0  
 100 s : (4,3...5,2)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (0,5)  
 2nd speed rpm : 1000  
 Rack travel in mm : 11,90...12,10  
 Del. quantity cm<sup>3</sup>/ : 7,3...8,2  
 100 s : (7,0...8,5)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (0,55)  
 3rd speed rpm : 200  
 Rack travel in mm : 8,90...9,10  
 Del. quantity cm<sup>3</sup>/ : 2,05...2,85  
 100 s : (1,7...3,2)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,45)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1400  
 Del. quantity : 61,0...63,0  
 1000 : (59,5...64,5)  
 Spread cm<sup>3</sup> : 3,0  
 1000 : (5,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 62...70

Testing:  
 1st rack travel in: 17,70  
 Speed rpm : 1425  
 2nd rack travel in: 16,70  
 Speed rpm : 1465...1475  
 3rd rack travel in: 1,50...1,80  
 Speed rpm : 1650  
 4th rack travel in: 1780  
 Speed rpm : 0,00...1,00

LOW IDLE 1  
 Control lever  
 position degrees: 6...14

Testing:  
 Speed rpm : 100  
 Minimum rack trave: 6,60



Speed rpm : 250  
Rack travel in mm : 5,50...7,00  
Rack travel in mm : 5,00  
Speed rpm : 330...370  
Speed rpm : 770  
Maximum rack travel : 1,00

#### START CUT-OUT

Speed 1/min : 220

#### BREAKAWAY

1st version  
Speed rpm : 1425...1450

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 13,70...14,30

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,9 I 9  
 Edition : 01.03.88  
 Replaces : -  
 Test oil : ISO 4113  
 Combination no. : 9 400 084 241  
 Injection pump  
 Pump designation : PES6A80D410RS2085Y  
 Governor  
 Governor design. : RSV575...1100A1B629D  
 L

Customer-spec. information  
 Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

H08

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del. quantity cm<sup>3</sup>/ : 4,35...4,85

100 s : (4,15...5,05)

Spread cm<sup>3</sup> : 0,40

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 14,90...15,10

Del. quantity cm<sup>3</sup>/ : 10,25...11,65

100 s : (9,95...11,95)

Spread cm<sup>3</sup> : 0,35

100 s : (0,45)

3rd speed rpm : 200

Rack travel in mm : 8,90...9,10

Del. quantity cm<sup>3</sup>/ : 2,45...3,45

100 s : (2,2...3,7)

Spread cm<sup>3</sup> : 0,20

100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del. quantity : 53,5...54,5

1000 : (52,0...56,0)

Spread cm<sup>3</sup> : 2,5

1000 : (4,0)

## RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 16,00

Speed rpm : 1140...1150

3rd rack travel in: 4,20...7,40

Speed rpm : 1190

4th rack travel in: 1340

Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever

position degrees: 28...36  
Setting point w/out bumper spring  
Speed rpm : 575  
Rack travel in mm : 7,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 575  
Rack travel in mm : 6,70...7,30  
Rack travel in mm : 4,00  
Speed rpm : 650  
Speed rpm : 800  
Maximum rack trave: 1,0

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1080  
Rack travel in m: -  
2nd speed rpm : 900  
Rack travel in m: +(0,10...0,30)  
3rd speed rpm : 650  
Rack travel in m: +(0,30...0,50)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 53,0...55,0  
1000 s: (51,0...57,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 48,5...50,5  
1000 s: (46,5...52,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1110...1130

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 14,20...14,80

#### LOW IDLE

Speed rpm : 575  
Rack travel in mm : 6,90...7,10

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 I 10  
 Edition : 01.03.88  
 Replaces : -  
 Test oil : ISO 4113  
 Combination no. : 9 400 084 244  
 Injection pump  
 Pump designation : PES6A80D41ORS2085Y  
 Governor  
 Governor design. : RSV350...900A7B638L

Customer-spec. information  
 Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

1st version kW : 63  
 Rated speed : 1800

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

H10

## BASIC SETTING

1st speed rpm : 900  
 Rack travel in mm : 9,60...9,70  
 Del. quantity cm<sup>3</sup>/ : 5,10...5,20  
 100 s : (4,90...5,40)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,40)  
 2nd speed rpm : 350  
 Rack travel in mm : 7,40...7,60  
 Del. quantity cm<sup>3</sup>/ : 1,65...1,95  
 100 s : (1,35...2,25)  
 Spread cm<sup>3</sup> : 0,20  
 100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 6,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 900  
 Del. quantity : 51,0...52,0  
 1000 : (49,5...53,5)  
 Spread cm<sup>3</sup> : 2,0  
 1000 : (3,5)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 56...64

Testing:  
 1st rack travel in: 8,60  
 Speed rpm : 940...950  
 2nd rack travel in: 4,00  
 Speed rpm : 960...990  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1050

## LOW IDLE 1

Control lever  
 position degrees: 24...32  
 Setting point w/out bumper spring  
 Speed rpm : 350  
 Rack travel in mm : 7,00

Speed rpm : 350  
Rack travel in mm : 7,40...7,60  
Rack travel in mm : 2,00  
Speed rpm : 420...480  
Speed rpm : 550  
Maximum rack trave: 1,0

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900  
Rack travel in m: 9,60...9,70  
2nd speed rpm : 500  
Rack travel in m: 9,60...9,70  
3rd speed rpm : 400  
Rack travel in m: 10,80...11,40

#### BREAKAWAY

1st version

Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 73,0...83,0

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,90...7,10

Remarks:

#### APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 I 11  
Edition : 01.03.88  
Replaces : -  
Test oil : ISO 4113

Combination no. : 9 400 084 245

Injection pump  
Pump designation : PES6A80D410RS2085Y  
Governor  
Governor design. : RSV550...1125A1B638L

Customer-spec. information  
Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
(2,10...2,30)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

H12

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del. quantity cm<sup>3</sup>/ : 4,35...4,85

100 s : (4,15...5,05)

Spread cm<sup>3</sup> : 0,30

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 14,90...15,10

Del. quantity cm<sup>3</sup>/ : 10,25...11,65

100 s : (9,95...11,95)

Spread cm<sup>3</sup> : 0,35

100 s : (0,45)

3rd speed rpm : 200

Rack travel in mm : 8,90...9,10

Del. quantity cm<sup>3</sup>/ : 2,45...3,45

100 s : (2,2...3,7)

Spread cm<sup>3</sup> : 0,2

100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1100

Del. quantity : 48,5...49,5

1000 : (47,0...51,0)

Spread cm<sup>3</sup> : 2,5

1000 : (4,0)

## RATED SPEED

### 1st version

Control lever

position degrees: 53...61

### Testing:

1st rack travel in: 16,00

Speed rpm : 1140...1150

3rd rack travel in: 4,40...6,20

Speed rpm : 1180

4th rack travel in: 1300

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever

position degrees: 26...34

Setting point w/out bumper spring

Speed rpm : 550

Rack travel in mm : 7,50

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 550

Rack travel in mm : 7,20...7,80

Rack travel in mm : 4,40

Speed rpm : 600

Speed rpm : 720

Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: -

2nd speed rpm : 850

Rack travel in m: -

3rd speed rpm : 650

Rack travel in m: +(1,20...1,80)

BREAKAWAY

1st version

Speed rpm : 1130...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 14,20...14,80

LOW IDLE

Speed rpm : 550

Rack travel in mm : 7,40...7,60

Remarks:

APPLICATION

Compressor

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 M 8  
Edition : 01.03.88  
Replaces : -  
Test oil : ISO 4113  
Combination no. : 9 400 084 250  
Injection pump  
Pump designation : PES6A80D410RS2085Y  
Governor  
Governor design. : RSV350...1000A1B1047  
DL

Customer-spec. information  
Customer : DAIMLER-BENZ-BRAS.

Engine : OM-352

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

H14

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del. quantity cm<sup>3</sup>/ : 4,35...4,85

100 s : (4,15...5,05)

Spread cm<sup>3</sup> : 0,3

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 14,90...15,10

Del. quantity cm<sup>3</sup>/ : 11,25...11,85

100 s : (10,95...12,15)

Spread cm<sup>3</sup> : 0,35

100 s : (0,45)

3rd speed rpm : 200

Rack travel in mm : 8,90...9,10

Del. quantity cm<sup>3</sup>/ : 2,45...3,45

100 s : (2,2...3,7)

Spread cm<sup>3</sup> : 0,20

100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 980

Del. quantity : 56,0...57,0

1000 : (54,5...58,5)

Spread cm<sup>3</sup> : 2,5

1000 : (4,0)

## RATED SPEED

### 1st version

Control lever

position degrees: 51...59

### Testing:

1st rack travel in: 16,00

Speed rpm : 1040...1050

3rd rack travel in: 3,80...6,00

Speed rpm : 1180

4th rack travel in: 1230

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever



position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 7,40...7,60  
Rack travel in mm : 2,50  
Speed rpm : 530...570  
Speed rpm : 650  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: -  
2nd speed rpm : 800  
Rack travel in m: +(0,30...0,50)  
3rd speed rpm : 500  
Rack travel in m: +(0,70...0,90)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 57,0...59,0  
1000 s: (55,0...61,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 57,5...59,5  
1000 s: (55,5...61,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1010...1030

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 14,2...14,8

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 3,8 I 3  
Edition : 01.03.88  
Replaces : -  
Test oil : ISO 4113  
  
Combination no. : 9 400 084 260  
  
Injection pump  
Pump designation : PES4A800410RS2094Z  
Governor  
Governor design. : RSV350...1000A1B1047  
DL

Customer-spec. information  
Customer : DAIMLER-BENZ-BRAS.

Engine : OM 314

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

H16

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del. quantity cm<sup>3</sup>/ : 4,35...4,85

100 s : (4,15...5,05)

Spread cm<sup>3</sup> : 0,40

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 14,90...15,10

Del. quantity cm<sup>3</sup>/ : 10,25...11,65

100 s : (9,95...11,95)

Spread cm<sup>3</sup> : 0,35

100 s : (0,45)

3rd speed rpm : 200

Rack travel in mm : 8,90...9,10

Del. quantity cm<sup>3</sup>/ : 2,45...3,45

100 s : (2,2...3,7)

Spread cm<sup>3</sup> : 0,2

100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 980

Del. quantity : 46,5...47,5

1000 : (45,0...49,0)

Spread cm<sup>3</sup> : 2,5

1000 : (4,0)

## RATED SPEED

### 1st version

Control lever

position degrees: 51...59

### Testing:

1st rack travel in: 16,00

Speed rpm : 1040...1050

3rd rack travel in: 3,80...6,00

Speed rpm : 1120

4th rack travel in: 1230

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever

position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 7,40...7,60  
Rack travel in mm : 2,50  
Speed rpm : 550  
Speed rpm : 650  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: -  
2nd speed rpm : 800  
Rack travel in m: +(0,30...0,50)  
3rd speed rpm : 500  
Rack travel in m: +(0,80...1,00)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 46,0...48,0  
1000 s: (44,0...50,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 46,0...48,0  
1000 s: (44,0...50,0)

#### BREAKAWAY

##### 1st version

Speed rpm : 1010...1030

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 14,20...14,80

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 I 13  
Edition : 03.03.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 9 400 084 299  
  
Injection pump  
Pump designation : PES6A80D410RS2085Y  
Governor  
Governor design. : RSV350...1100A1B735D  
L

Customer-spec. information  
Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 1-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

H18

1st speed rpm : 1000  
Rack travel in mm : 9,00...9,10  
Del. quantity cm3/ : 4,35...4,85  
100 s : (4,15...5,05)

Spread cm3 : 0,25  
100 s : (0,40)

2nd speed rpm : 1000  
Rack travel in mm : 14,90...15,10  
Del. quantity cm3/ : 10,25...11,65  
100 s : (9,95...11,95)  
Spread cm3 : 0,35  
100 s : (0,45)

3rd speed rpm : 200  
Rack travel in mm : 8,90...9,10  
Del. quantity cm3/ : 2,45...3,45  
100 s : (2,2...3,7)  
Spread cm3 : 0,2  
100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1080  
Del. quantity : 56,0...57,0  
1000 : (54,5...58,5)  
Spread cm3 : 2,5  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 51...59

Testing:  
1st rack travel in: 16,00  
Speed rpm : 1040...1050  
3rd rack travel in: 3,30...5,40  
Speed rpm : 1210  
4th rack travel in: 1310  
Speed rpm : 0,00...1,00

LOW IDLE 1  
Control lever

position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 7,30...7,70  
Rack travel in mm : 3,10  
Speed rpm : 530...570  
Speed rpm : 660  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: -  
2nd speed rpm : 1000  
Rack travel in m: -  
3rd speed rpm : 800  
Rack travel in m: +(0,40...0,60)  
4th speed rpm : 500  
Rack travel in m: +(0,80...1,40)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 55,0...57,0  
1000 s: (53,0...59,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 54,0...56,0  
1000 s: (52,0...58,0)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1105...1130

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 14,20...14,80

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 7,40...7,60

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,6 m  
Edition : 07.86  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 9 400 230 022  
  
Injection pump  
Pump designation : PES6A100D41ORS3032  
Governor  
Governor design. : RSV400...1100AZB2086

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6466T

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 413 385 007

Inlet press., bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 1,95...2,05  
: (1,90...2,10)  
Rack travel in mm : 21,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

H20

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  
Rack travel in mm : 11,45  
Del. quantity cm3/ : 10,9...11,1  
Spread cm3 : 0,3  
2nd speed rpm : 400  
Rack travel in mm : 6,80  
Del. quantity cm3/ : 1,3...1,7  
Spread cm3 : 0,4

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Aneroid pressure h: 1200  
Del. quantity : 109,0...111,0

## RATED SPEED

1st version  
Control lever  
position degrees: 35...43

Testing:  
1st rack travel in: 10,45  
Speed rpm : 1145...1155  
2nd rack travel in: 4,00  
Speed rpm : 1195...1225  
4th rack travel in: 1250  
Speed rpm : 0,30...1,70

## LOW IDLE 1

Control lever  
position degrees: 14...20  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 6,30

Testing:  
Speed rpm : 100  
Minimum rack travel: 19,00  
Speed rpm : 400  
Rack travel in mm : 6,80

Rack travel in mm : 2,00  
Speed rpm : 460...520  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 11,40...11,50  
2nd speed rpm : 1000  
Rack travel in m: 11,35...11,65  
3rd speed rpm : 750  
Rack travel in m: 12,75...12,95

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Rack travel in mm : 420  
Contr.-rod trav.mm: 12,75...12,85

Measurement

Speed 1/min : 500

1st pressure hPa : 200  
Rack travel in m: 11,10...11,50

#### FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200  
Speed rpm : 650  
Del.quantity cm3/ : 126,0...129,0  
Speed rpm : 500  
Del.quantity cm3/ : 78,5...81,5

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 N 20  
 Edition : 03.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 211  
 Injection pump  
 Pump designation : PES6A90D410RS2293  
 Governor  
 Governor design. : RSV350...1050A1B1086  
 DL

Customer-spec. information  
 Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352 A

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)

Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

H22

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del. quantity cm<sup>3</sup>/ : 4,5...5,0

100 s : (4,3...5,2)

Spread cm<sup>3</sup> : 0,25

100 s : (0,40)

2nd speed rpm : 1000

Rack travel in mm : 11,90...12,10

Del. quantity cm<sup>3</sup>/ : 7,3...8,2

100 s : (7,0...8,5)

Spread cm<sup>3</sup> : 0,35

100 s : (0,45)

3rd speed rpm : 200

Rack travel in mm : 8,90...9,10

Del. quantity cm<sup>3</sup>/ : 2,05...2,85

100 s : (1,8...3,1)

Spread cm<sup>3</sup> : 0,2

100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1030

Del. quantity : 44,0...45,0

1000 : (42,0...47,0)

Spread cm<sup>3</sup> : 2,5

1000 : (4,0)

## RATED SPEED

### 1st version

Control lever

position degrees: 58...66

### Testing:

1st rack travel in: 16,00

Speed rpm : 1150

3rd rack travel in: 3,20...6,00

Speed rpm : 1190

4th rack travel in: 1340

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever



position degrees: 25...33  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 7,30...7,70  
Rack travel in mm : 2,80  
Speed rpm : 600  
Speed rpm : 720  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: -  
2nd speed rpm : 800  
Rack travel in m: +(1,20...1,40)  
3rd speed rpm : 500  
Rack travel in m: +(2,30...2,70)  
4th speed rpm : 400  
Rack travel in m: +(2,30...2,80)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 50,5...52,5  
1000 s: (48,0...55,0)  
Spread cm3 : 4,0  
1000 s: (5,5)  
Speed rpm : 500  
Del.quantity cm3/ : 57,0...59,0  
1000 s: (54,5...61,5)  
Spread cm3 : 4,0  
1000 s: (5,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1060...1080

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 13,70...14,30

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FIA 8,1 A  
Edition : 03.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 9 407 083 233

Injection pump  
Pump designation : PES6A90D41ORS2482  
Governor  
Governor design. : RQ275/1200AB1027DL

Customer-spec. information  
Customer : FDB

Engine : 8360

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)

Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12,60...12,70

Del. quantity cm<sup>3</sup>/ : 7,15...7,35

100 s : (6,90...7,60)

Spread cm<sup>3</sup> : 0,3

100 s : (0,5)

2nd speed rpm : 275

Rack travel in mm : 8,30...8,50

Del. quantity cm<sup>3</sup>/ : 0,5...0,9

100 s : (0,2...0,6)

Spread cm<sup>3</sup> : 0,25

100 s : (0,45)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 900

Rack travel in mm : 14,20...15,00

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1200

Del. quantity : 71,5...73,5

1000 : (69,5...74,5)

Spread cm<sup>3</sup> : 3,0

1000 : (5,0)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 900

Rack travel in mm : 14,6

Testing:

1st rack travel in: 11,60

Speed rpm : 1245...1260

2nd rack travel in: 4,00

Speed rpm : 1350...1380

3rd rack travel in: 0,00...1,00

Speed rpm : 1500

## LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275

Rack travel in mm : 5,80

Testing:

Speed rpm : 100

Minimum rack travel: 7,30

Speed rpm : 275

Rack travel in mm : 5,70...5,90

Rack travel in mm : 2,00  
Speed rpm : 420...480  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200  
Rack travel in m: 12,60...12,70  
2nd speed rpm : 700  
Rack travel in m: 13,10...13,40  
3rd speed rpm : 500  
Rack travel in m: 13,45...13,55

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700  
Del.quantity cm3/ : 68,0...70,0  
1000 s: (65,5...72,5)  
Spread cm3 : 4,0  
1000 s: (5,5)  
Speed rpm : 500  
Del.quantity cm3/ : 65,5...67,5  
1000 s: (63,0...70,0)  
Spread cm3 : 4,0  
1000 s: (5,5)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,60  
Speed rpm : 1245...1260

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100,0...110,0  
1000 s: (97,0...113,0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FIA 4,6 C  
Edition : 03.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 9 407 083 234

Injection pump  
Pump designation : PES4A90D410RS2548  
Governor  
Governor design. : RQ300/1200AB1028L

Customer-spec. information  
Customer : FDB

Engine : 8340

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
(2,10...2,30)

Rack travel in mm : 9,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

H26

1st speed rpm : 1200

Rack travel in mm : 10,85...10,95

Del. quantity cm<sup>3</sup>/ : 6,5...6,6

100 s : (6,25...6,85)

Spread cm<sup>3</sup> : 0,30

100 s : (0,50)

2nd speed rpm : 300

Rack travel in mm : 7,90...8,10

Del. quantity cm<sup>3</sup>/ : 0,70...1,10

100 s : (0,30...0,70)

Spread cm<sup>3</sup> : 0,25

100 s : (0,45)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15,60...16,40

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1200

Del. quantity : 65,0...66,0

1000 : (63,0...67,0)

Spread cm<sup>3</sup> : 3,0

1000 : (5,0)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16,0

Testing:

1st rack travel in: 9,90

Speed rpm : 1245...1260

2nd rack travel in: 4,00

Speed rpm : 1365...1395

3rd rack travel in: 0,00...1,00

Speed rpm : 1500

## LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack trave: 7,50

Speed rpm : 300

Rack travel in mm : 5,90...6,10

Rack travel in mm : 2,00  
Speed rpm : 450...490  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200  
Rack travel in m: 10,85...10,95  
2nd speed rpm : 710  
Rack travel in m: 11,30...11,60  
3rd speed rpm : 630  
Rack travel in m: 11,75...11,85

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900  
Del.quantity cm3/ : 59,0...61,0  
1000 s: (56,5...63,5)  
Spread cm3 : 4,0  
1000 s: (5,5)  
Speed rpm : 500  
Del.quantity cm3/ : 63,0...65,0  
1000 s: (60,5...67,5)  
Spread cm3 : 5,5  
1000 s: (4,0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9,90  
Speed rpm : 1245...1260

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120,0...130,0  
1000 s: (117,0...133,0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 I 12  
 Edition : 03.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 244  
 Injection pump  
 Pump designation : PES6A800410RS2085Y  
 Governor  
 Governor design. : RSV350...1200A1B1125  
 DL

Customer-spec. information  
 Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)

Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

H28

1st speed rpm : 1200  
 Rack travel in mm : 7,00...7,10  
 Del. quantity cm<sup>3</sup>/ : 3,35...3,45  
 100 s : (3,15...3,65)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,40)

2nd speed rpm : 350  
 Rack travel in mm : 6,90...7,10  
 Del. quantity cm<sup>3</sup>/ : 1,45...1,75  
 100 s : (1,15...2,05)  
 Spread cm<sup>3</sup> : 0,20  
 100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 4,3

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Del. quantity : 33,5...34,5  
 1000 : (32,0...36,0)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 63...71

Testing:  
 1st rack travel in: 6,00  
 Speed rpm : 1240...1250  
 2nd rack travel in: 4,00  
 Speed rpm : 1255...1285  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1400

## LOW IDLE 1

Control lever  
 position degrees: 26...34  
 Setting point w/out bumper spring  
 Speed rpm : 350  
 Rack travel in mm : 7,00

Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 7,40...7,60  
Rack travel in mm : 2,00  
Speed rpm : 570...630  
Speed rpm : 800  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200  
Rack travel in m: 7,00...7,10  
2nd speed rpm : 800  
Rack travel in m: 7,40...7,70  
3rd speed rpm : 500  
Rack travel in m: 8,50...8,60

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm3/ : 31,5...33,5  
1000 s: (29,5...35,5)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 33,5...35,5  
1000 s: (31,5...37,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

1st version

Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 83,0...93,0  
Rack travel in mm : 14,20...14,80

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 3,9 B 7  
Edition : 03.03.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 9 407 083 248  
Injection pump  
Pump designation : PES4A80D32ORS1282  
Governor  
Governor design. : RS350/1500A2B2073R

Customer-spec. information  
Customer : MWM

Engine : D 229-4

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
: (2,15...2,35)  
Rack travel in mm : 9,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,00  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1480  
Rack travel in mm : 8,95...9,05  
Del. quantity cm<sup>3</sup>/ : 5,55...5,65  
100 s : (5,35...5,85)  
Spread cm<sup>3</sup> : 0,25  
100 s : (0,4)  
2nd speed rpm : 350  
Rack travel in mm : 5,90...6,10  
Del. quantity cm<sup>3</sup>/ : 0,55...0,85  
100 s : (0,25...1,15)  
Spread cm<sup>3</sup> : 0,20  
100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 4,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1480  
Del. quantity : 55,5...56,5  
1000 : (54,0...58,0)  
Spread cm<sup>3</sup> : 2,5  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 55...63

Testing:  
1st rack travel in: 8,00  
Speed rpm : 1540...1550  
2nd rack travel in: 4,00  
Speed rpm : 1570...1600  
3rd rack travel in: 0,30...1,70  
Speed rpm : 1700

## LOW IDLE 1

Control lever  
position degrees: 30...38



Setting point w/out bumper spring

Speed rpm : 350  
Rack travel in mm : 6,00  
Speed rpm : 300  
Rack travel in mm : 6,60...7,20  
Rack travel in mm : 1350  
Speed rpm : 2,1...2,6  
Speed rpm : 1600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1480  
Rack travel in m: 8,95...9,05  
2nd speed rpm : 1000  
Rack travel in m: 9,20...9,40  
3rd speed rpm : 800  
Rack travel in m: 9,45...9,75  
4th speed rpm : 500  
Rack travel in m: 9,70...9,80

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000  
Del.quantity cm3/ : 52,5...54,5  
1000 s: (50,5...56,5)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 800  
Del.quantity cm3/ : 51,0...53,0  
1000 s: (49,0...55,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 48,0...50,0  
1000 s: (46,0...52,0)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

1st version

Speed rpm : 1540...1550

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00...21,00

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 3,8 I 5  
 Edition : 03.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 253  
 Injection pump  
 Pump designation : PES4A80D410RS2094Z  
 Governor  
 Governor design. : RSV350...900A7B2076L

Customer-spec. information  
 Customer : DAIMLER-BENZ-BRAS.

Engine : OM 314

1st version kW : 41  
 Rated speed : 1800

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 900  
 Rack travel in mm : 9,60...9,70  
 Del. quantity cm<sup>3</sup>/ : 5,2...5,3  
 100 s : (5,0...5,5)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,40)  
 2nd speed rpm : 350  
 Rack travel in mm : 7,70...7,90  
 Del. quantity cm<sup>3</sup>/ : 1,9...2,2  
 100 s : (1,6...2,5)  
 Spread cm<sup>3</sup> : 0,20  
 100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 6,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 900  
 Del. quantity : 52,0...53,0  
 1000 : (50,5...54,5)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 56...64

Testing:  
 1st rack travel in: 8,60  
 Speed rpm : 940...950  
 2nd rack travel in: 4,00  
 Speed rpm : 960...990  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1050

## LOW IDLE 1

Control lever  
 position degrees: 24...32  
 Setting point w/out bumper spring  
 Speed rpm : 350  
 Rack travel in mm : 6,00

Speed rpm : 350  
Rack travel in mm : 7,70...7,90  
Rack travel in mm : 2,00  
Speed rpm : 430...490  
Speed rpm : 550  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900  
Rack travel in m: 9,60...9,70  
2nd speed rpm : 550  
Rack travel in m: 9,60...9,70  
3rd speed rpm : 400  
Rack travel in m: 10,80...11,40

#### BREAKAWAY

1st version

Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 73,0...83,0

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,90...7,10

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 3,8 I 4  
Edition : 03.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 9 407 083 254

Injection pump  
Pump designation : PES4A80D410RS2094Z  
Governor  
Governor design. : RSV550...1125A1B2076  
L

Customer-spec. information  
Customer : DAIMLER-BENZ-BRAS.

Engine : OM 314

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)

Rack travel in mm : 9,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270

## BASIC SETTING

J06

1st speed rpm : 1100

Rack travel in mm : 8,75...8,85

Del. quantity cm<sup>3</sup>/ : 4,85...5,05

100 s : (4,65...5,25)

Spread cm<sup>3</sup> : 0,25

100 s : (0,40)

2nd speed rpm : 550

Rack travel in mm : 5,40...5,60

Del. quantity cm<sup>3</sup>/ : 0,55...0,85

100 s : (0,25...1,15)

Spread cm<sup>3</sup> : 0,2

100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : 5,0

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1100

Del. quantity : 48,5...50,5

1000 : (47,5...51,5)

Spread cm<sup>3</sup> : 2,5

1000 : (4,0)

## RATED SPEED

### 1st version

Control lever

position degrees: 53...61

### Testing:

1st rack travel in: 7,80

Speed rpm : 1165...1175

2nd rack travel in: 4,00

Speed rpm : 1185...1215

3rd rack travel in: 0,30...1,70

Speed rpm : 1300

## LOW IDLE 1

Control lever

position degrees: 28...36

Setting point w/out bumper spring

Speed rpm : 550

Rack travel in mm : 6,4...6,6

### Testing:

Speed rpm : 100

Minimum rack trave: 19,00  
Speed rpm : 550  
Rack travel in mm : 7,40...7,60  
Rack travel in mm : 2,00  
Speed rpm : 620...680  
Speed rpm : 800  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 8,75...8,85  
2nd speed rpm : 550  
Rack travel in m: 8,75...8,95  
3rd speed rpm : 400  
Rack travel in m: 10,10...10,60

#### BREAKAWAY

1st version

Speed rpm : 1165...1175

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 73,0...83,0  
Rack travel in mm : 14,20...14,80

#### LOW IDLE

Speed rpm : 550  
Rack travel in mm : 6,40...6,60

Remarks:

#### APPLICATION

Compressor

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MM 4,1 D  
Edition : 03.03.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 9 407 083 255  
  
Injection pump  
Pump designation : PES4A80D320RS1282  
Governor  
Governor design. : RSV350...1500A2B2077  
R

Customer-spec. information  
Customer : MM

Engine : D 226-4

1st version kW : 59  
Rated speed : 3000

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
: (2,15...2,35)  
Rack travel in mm : 9,00  
Firing order : 1-3-4-2

Phasing : 0-90-120-180  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1500  
Rack travel in mm : 9,55...9,65  
Del. quantity cm<sup>3</sup>/ : 5,55...5,65  
100 s: (5,35...5,85)  
Spread cm<sup>3</sup> : 0,20  
100 s: (0,35)

2nd speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Del. quantity cm<sup>3</sup>/ : 0,85...1,25  
100 s: (0,55...1,55)  
Spread cm<sup>3</sup> : 0,2  
100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 5,2

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1500  
Del. quantity : 55,5...56,5  
1000 : (54,0...58,0)  
Spread cm<sup>3</sup> : 2,5  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 60...68

Testing:  
1st rack travel in: 8,60  
Speed rpm : 1540...1550  
2nd rack travel in: 4,00  
Speed rpm : 1590...1620  
3rd rack travel in: 0,30...1,70

Speed rpm : 1740

#### LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5,50

#### Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 350

Rack travel in mm : 5,90...6,10

Rack travel in mm : 2,00

Speed rpm : 580...640

Speed rpm : 800

Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1500

Rack travel in m: 9,55...9,65

2nd speed rpm : 1000

Rack travel in m: 9,75...10,05

3rd speed rpm : 800

Rack travel in m: 10,05...10,25

4th speed rpm : 500

Rack travel in m: 10,30...10,40

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1000

Del.quantity cm3/ : 53,5...55,5

1000 s: (53,0...56,0)

Spread cm3 : 3,5

1000 s: (4,5)

Speed rpm : 800

Del.quantity cm3/ : 51,5...53,5

1000 s: (51,0...54,0)

Spread cm3 : 3,5

1000 s: (4,5)

Speed rpm : 500

Del.quantity cm3/ : 48,0...50,0

1000 s: (47,5...50,5)

Spread cm3 : 3,5

1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1540...1550

#### STARTING FUEL DELIVERY

Speed rpm : 100

J09

Del.quantity cm3/ : 90,0...130,0

#### LOW IDLE

Speed rpm : 350

Rack travel in mm : 5,40...5,60

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,9 I 1  
Edition : 04.03.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 9 407 083 257  
Injection pump  
Pump designation : PES6A90D32ORS260S  
Governor  
Governor design. : RSV32S...1150A2B2097

Customer-spec. information  
Customer : MWM

Engine : TD 229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
: (2,15...2,35)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1130  
Rack travel in mm : 8,80...8,90  
Del. quantity cm<sup>3</sup>/ : 6,6...6,7  
100 s: (6,35...6,95)  
Spread cm<sup>3</sup> : 0,3  
100 s: (0,5)  
2nd speed rpm : 325  
Rack travel in mm : 6,40...6,60  
Del. quantity cm<sup>3</sup>/ : 0,85...1,25  
100 s: (0,45...1,65)  
Spread cm<sup>3</sup> : 0,25  
100 s: (0,45)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 3,2

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1130  
Del. quantity : 66,0...67,0  
1000 : (65,0...68,0)  
Spread cm<sup>3</sup> : 3,0  
1000 : (5,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 40...48

Testing:  
1st rack travel in: 7,80  
Speed rpm : 1165...1175  
2nd rack travel in: 4,00  
Speed rpm : 1190...1220  
3rd rack travel in: 0,30...1,70  
Speed rpm : 1350

## LOW IDLE 1

Control lever  
position degrees: 18...26



Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100

Minimum rack travel: 19,00

Speed rpm : 325

Rack travel in mm : 6,40...6,60

Rack travel in mm : 2,00

Speed rpm : 590...650

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1130

Rack travel in m: 8,80...8,90

2nd speed rpm : 800

Rack travel in m: 9,70...10,00

3rd speed rpm : 500

Rack travel in m: 10,10...10,20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800

Del.quantity cm3/ : 69,5...71,5

1000 s: (67,0...74,0)

Spread cm3 : 4,0

1000 s: (5,5)

Speed rpm : 500

Del.quantity cm3/ : 64,5...66,5

1000 s: (62,0...69,0)

Spread cm3 : 4,0

1000 s: (5,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1165...1175

#### STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19,00

#### LOW IDLE

Speed rpm : 325

Rack travel in mm : 5,90...6,10

Remarks:

: VALMET

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,9 I 2  
Edition : 04.03.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 9 407 083 263  
Injection pump  
Pump designation : PES6A90D32ORS260S  
Governor  
Governor design. : RSV325...900A1B2132R

Customer-spec. information  
Customer : MWM

Engine : TD 229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
: (2,15...2,35)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 900  
Rack travel in mm : 10,05...10,25  
Del. quantity cm3/ : 7,3...7,4  
100 s: (7,15...7,65)  
Spread cm3 : 0,3  
100 s: (0,5)  
2nd speed rpm : 325  
Rack travel in mm : 6,90...7,10  
Del. quantity cm3/ : 1,35...1,75  
100 s: (0,95...2,15)  
Spread cm3 : 0,25  
100 s: (0,45)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 3,5

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 900  
Del. quantity : 73,0...74,0  
1000 : (71,0...76,0)  
Spread cm3 : 3,0  
1000 : (5,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 40...48

Testing:  
1st rack travel in: 9,20  
Speed rpm : 920...930  
2nd rack travel in: 4,00  
Speed rpm : 950...970  
3rd rack travel in: 0,30...1,70  
Speed rpm : 1050

## LOW IDLE 1

Control lever  
position degrees: 18...26

Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6,40...6,60

Testing:

Speed rpm : 100  
Minimum rack trave: 19,000  
Speed rpm : 325  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 370...430  
Speed rpm : 500  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 500  
Rack travel in m: 10,15...10,35  
2nd speed rpm : 375  
Rack travel in m: 11,00...11,60

BREAKAWAY

1st version  
Speed rpm : 920...930

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00

LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6,40...6,60

Remarks:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 N 19  
Edition : 04.03.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 9 407 083 273  
Injection pump  
Pump designation : PES6A90D41ORS2293  
Governor  
Governor design. : RSV350...1250A2B2150  
L

Customer-spec. information  
Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)

Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1250  
Rack travel in mm : 8,95...9,05  
Del. quantity cm<sup>3</sup>/ : 5,1...5,2  
100 s : (4,85...5,45)  
Spread cm<sup>3</sup> : 0,3  
100 s : (0,5)  
2nd speed rpm : 350  
Rack travel in mm : 7,40...7,60  
Del. quantity cm<sup>3</sup>/ : 1,3...1,7  
100 s : (0,9...2,1)  
Spread cm<sup>3</sup> : 0,25  
100 s : (0,45)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 2,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1250  
Del. quantity : 51,0...52,0  
1000 : (49,0...54,0)  
Spread cm<sup>3</sup> : 3,0  
1000 : (5,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 37...45

Testing:  
1st rack travel in: 8,00  
Speed rpm : 1290...1300  
2nd rack travel in: 4,00  
Speed rpm : 1305...1335  
3rd rack travel in: 0,30...1,70  
Speed rpm : 1400

## LOW IDLE 1

Control lever  
position degrees: 13...21  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7,00

Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 7,40...7,60  
Rack travel in mm : 2,00  
Speed rpm : 610...670  
Speed rpm : 750  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 8,95...9,05  
2nd speed rpm : 900  
Rack travel in m: 9,75...10,05  
3rd speed rpm : 500  
Rack travel in m: 10,55...10,65

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900  
Del.quantity cm3/ : 54,5...56,5  
1000 s: (52,0...59,0)  
Spread cm3 : 4,0  
1000 s: (5,5)  
Speed rpm : 500  
Del.quantity cm3/ : 52...54  
1000 s: (49,5...56,5)  
Spread cm3 : 4,0  
1000 s: (5,5)

#### BREAKAWAY

1st version

Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 73,0...83,0

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,90...7,10

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,9 A 11  
 Edition : 04.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 279  
 Injection pump  
 Pump designation : PES6A80D32ORS1271  
 Governor  
 Governor design. : RSV350...1400A2B2179  
 R

Customer-spec. information  
 Customer : MWM

Engine : D229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
 : (2,15...2,35)

Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1380  
 Rack travel in mm : 9,45...9,55  
 Del. quantity cm<sup>3</sup>/ : 5,25...5,35  
 100 s: (5,05...5,55)  
 Spread cm<sup>3</sup> : 0,25  
 100 s: (0,4)  
 2nd speed rpm : 350  
 Rack travel in mm : 6,90...7,10  
 Del. quantity cm<sup>3</sup>/ : 0,75...1,05  
 100 s: (0,45...1,35)  
 Spread cm<sup>3</sup> : 0,2  
 100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 5,1

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1380  
 Del. quantity : 52,5...53,5  
 1000 : (51,0...55,0)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 50...58

Testing:  
 1st rack travel in: 8,50  
 Speed rpm : 1420...1430  
 2nd rack travel in: 4,00  
 Speed rpm : 1470...1500  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1650

LOW IDLE 1  
 Control lever

position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 640...700  
Speed rpm : 850  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1380  
Rack travel in m: 9,45...9,55  
2nd speed rpm : 1100  
Rack travel in m: 9,95...10,25  
3rd speed rpm : 800  
Rack travel in m: 10,70...10,90  
4th speed rpm : 500  
Rack travel in m: 10,90...11,00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1100  
Del.quantity cm3/ : 54,5...56,5  
1000 s: (52,5...58,5)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 800  
Del.quantity cm3/ : 54...56  
1000 s: (52...58)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 52...54  
1000 s: (50...56)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1420...1430

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00...21,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,40...6,60

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,9 A12  
 Edition : 04.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 280  
 Injection pump  
 Pump designation : PES6A800320RS1271  
 Governor  
 Governor design. : RSV350...1500A2B2180  
 R

Customer-spec. information  
 Customer : MWM

Engine : D 229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
 : (2,15...2,35)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1480  
 Rack travel in mm : 9,45...9,55  
 Del. quantity cm<sup>3</sup>/ : 5,2...5,3  
 100 s : (5,0...5,5)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,4)  
 2nd speed rpm : 350  
 Rack travel in mm : 6,90...7,10  
 Del. quantity cm<sup>3</sup>/ : 0,75...1,05  
 100 s : (0,45...1,35)  
 Spread cm<sup>3</sup> : 0,35  
 100 s : (0,45)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 5,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1480  
 Del. quantity : 52,0...53,0  
 1000 : (50,5...54,5)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 53...61

Testing:  
 1st rack travel in: 8,50  
 Speed rpm : 1520...1530  
 2nd rack travel in: 4,00  
 Speed rpm : 1570...1600  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1750

## LOW IDLE 1

Control lever



position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 640...700  
Speed rpm : 850  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1480  
Rack travel in m: 9,45...9,55  
2nd speed rpm : 1100  
Rack travel in m: 9,95...10,25  
3rd speed rpm : 800  
Rack travel in m: 10,70...10,90  
4th speed rpm : 500  
Rack travel in m: 10,90...11,00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1100  
Del. quantity cm3/ : 54,0...56,0  
1000 s: (53,5...56,5)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 800  
Del. quantity cm3/ : 53,5...55,5  
1000 s: (53,0...56,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del. quantity cm3/ : 51,5...53,5  
1000 s: (51,0...54,0)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1520...1530

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00...21,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,40...6,60

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,9 I  
Edition : 04.03.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 9 407 083 282  
  
Injection pump  
Pump designation : PES6A90D32ORS2605  
Governor  
Governor design. : RSV325...1400A2B2096  
R

Customer-spec. information  
Customer : MWM

Engine : TD 229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
: (2,15...2,35)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1400  
-----  
Rack travel in mm : 8,00...8,10  
-----  
Del. quantity cm<sup>3</sup>/ : 6,5...6,6  
-----  
100 s: (6,25...6,85)  
-----  
Spread cm<sup>3</sup> : 0,3  
-----  
100 s: (0,5)  
-----  
2nd speed rpm : 325  
Rack travel in mm : 6,40...6,60  
Del. quantity cm<sup>3</sup>/ : 0,95...1,35  
100 s: (0,55...1,75)  
-----  
Spread cm<sup>3</sup> : 0,25  
100 s: (0,45)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 3,5

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1400  
Del. quantity : 65,0...66,0  
1000 : (64,0...67,0)  
-----  
Spread cm<sup>3</sup> : 3,0  
1000 : (5,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 52...60  
  
Testing:  
1st rack travel in: 7,00  
Speed rpm : 1440...1450  
2nd rack travel in: 4,00  
Speed rpm : 1465...1495  
3rd rack travel in: 0,30...1,70  
Speed rpm : 1650

LOW IDLE 1  
Control lever

position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 325  
Rack travel in mm : 6,40...6,60  
Rack travel in mm : 2,00  
Speed rpm : 620...680

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 8,00...8,10  
2nd speed rpm : 1200  
Rack travel in m: 8,00...8,20  
3rd speed rpm : 800  
Rack travel in m: 8,40...8,70  
4th speed rpm : 500  
Rack travel in m: 8,95...9,05

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 52...54  
1000 s: (49,5...56,5)  
Spread cm3 : 4,0  
1000 s: (5,5)  
Speed rpm : 500  
Del.quantity cm3/ : 50,0...52,0  
1000 s: (47,5...54,5)  
Spread cm3 : 4,0  
1000 s: (5,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1440...1450

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 5,90...6,10

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 2,9 B  
Edition : 04.03.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 9 407 083 283  
Injection pump  
Pump designation : PES3A80D32ORS1281  
Governor  
Governor design. : RSV350...1150A2B2129  
-1R

Customer-spec. information  
Customer : MWM

Engine : D229-3

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
: (2,15...2,35)  
Rack travel in mm : 9,00  
Firing order : 1-2-3-

Phasing : 0-120-240  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 9,40...9,50  
Del. quantity cm<sup>3</sup>/ : 5,1...5,2  
100 s: (4,9...5,4)  
Spread cm<sup>3</sup> : 0,25  
100 s: (0,4)  
2nd speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Del. quantity cm<sup>3</sup>/ : 0,95...1,25  
100 s: (0,65...1,65)  
Spread cm<sup>3</sup> : 0,2  
100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 4,35

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Del. quantity : 51,0...52,0  
1000 : (49,5...53,5)  
Spread cm<sup>3</sup> : 2,5  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 43...51

Testing:  
1st rack travel in: 8,40  
Speed rpm : 1190...1200  
2nd rack travel in: 4,00  
Speed rpm : 1235...1265  
3rd rack travel in: 0,30...1,70  
Speed rpm : 1400

LOW IDLE 1  
Control lever

position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 670...710  
Speed rpm : 800  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9,40...9,50  
2nd speed rpm : 900  
Rack travel in m: 10,00...10,30  
3rd speed rpm : 500  
Rack travel in m: 10,75...10,85

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 900  
Del.quantity cm3/ : 53,0...55,0  
1000 s: (51,0...57,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 52,5...54,5  
1000 s: (50,5...56,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00...21,00

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6,40...6,60

Remarks:

: VALMET

#### APPLICATION

J23

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 3,9 B 6  
 Edition : 04.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 284  
 Injection pump  
 Pump designation : PES4A80D320RS1282  
 Governor  
 Governor design. : RSV350...1150A2B2129  
 -1R

Customer-spec. information  
 Customer : MWM

Engine : D229-4

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
 : (2,15...2,35)  
 Rack travel in mm : 9,00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1150  
 Rack travel in mm : 8,80...8,90  
 Del. quantity cm<sup>3</sup>/ : 4,95...5,05  
 100 s : (4,75...5,25)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,4)  
 2nd speed rpm : 350  
 Rack travel in mm : 6,40...6,60  
 Del. quantity cm<sup>3</sup>/ : 0,7...1,0  
 100 s : (0,4...1,3)  
 Spread cm<sup>3</sup> : 0,2  
 100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 4,3

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Del. quantity : 49,5...50,5  
 1000 : (48,0...52,0)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 42...50

Testing:  
 1st rack travel in: 7,90  
 Speed rpm : 1170...1180  
 2nd rack travel in: 4,00  
 Speed rpm : 1210...1240  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1400

## LOW IDLE 1

Control lever

position degrees: 15...23  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 6,40...6,60  
Rack travel in mm : 2,00  
Speed rpm : 640...700  
Speed rpm : 800  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 8,80...8,90  
2nd speed rpm : 900  
Rack travel in m: 9,75...10,05  
3rd speed rpm : 500  
Rack travel in m: 10,55...10,65

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 900  
Del.quantity cm3/ : 53,0...55,0  
1000 s: (51,0...57,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 53,5...55,5  
1000 s: (51,5...57,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1170...1180

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00...21,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5,90...6,10

Remarks:

: VALMET

#### APPLICATION

J25

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,9 A10  
 Edition : 04.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 286  
 Injection pump  
 Pump designation : PES6A80D32ORS1271  
 Governor  
 Governor design. : RSV350...1500A2B2028  
 -1R

Customer-spec. information  
 Customer : MWM

Engine : D 229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
 : (2,15...2,35)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1480  
 Rack travel in mm : 9,20...9,30  
 Del. quantity cm<sup>3</sup>/ : 4,95...5,05  
 100 s : (4,75...5,25)  
 Spread cm<sup>3</sup> : 0,25  
 100 s : (0,4)  
 2nd speed rpm : 350  
 Rack travel in mm : 6,90...7,10  
 Del. quantity cm<sup>3</sup>/ : 0,75...1,05  
 100 s : (0,45...1,35)  
 Spread cm<sup>3</sup> : 0,2  
 100 s : (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 5,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1480  
 Del. quantity : 49,5...50,5  
 1000 : (48,0...52,0)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 56...64

Testing:  
 1st rack travel in: 8,20  
 Speed rpm : 1520...1530  
 2nd rack travel in: 4,00  
 Speed rpm : 1560...1590  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1700

LOW IDLE 1  
 Control lever



position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 600...660  
Speed rpm : 750  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1480  
Rack travel in m: 9,20...9,30  
2nd speed rpm : 1300  
Rack travel in m: 9,40...9,60  
3rd speed rpm : 1000  
Rack travel in m: 10,20...10,50  
4th speed rpm : 500  
Rack travel in m: 10,80...10,90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 500  
Del.quantity cm3/ : 51,5...53,5  
1000 s: (49,5...55,5)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 1000  
Del.quantity cm3/ : 55,5...57,5  
1000 s: (53,5...59,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

1st version  
Speed rpm : 1520...1530

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00...21,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,40...6,60

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,9 A 9  
Edition : 04.03.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 9 407 083 287  
  
Injection pump  
Pump designation : PES6A800320RS1271  
Governor  
Governor design. : RSV350...1000A1B628-1R

Customer-spec. information  
Customer : MWM

Engine : D 229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
: (2,15...2,35)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1025  
-----  
Rack travel in mm : 9,00...9,10  
-----  
Del. quantity cm<sup>3</sup>/ : 4,25...4,35  
-----  
100 s: (4,05...4,55)  
-----  
Spread cm<sup>3</sup> : 0,25  
-----  
100 s: (0,4)  
-----  
2nd speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Del. quantity cm<sup>3</sup>/ : 0,75...1,05  
-----  
100 s: (0,45...1,35)  
-----  
Spread cm<sup>3</sup> : 0,2  
-----  
100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 3,5

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1025  
Del. quantity : 42,5...43,5  
-----  
1000 : (41,0...45,0)  
-----  
Spread cm<sup>3</sup> : 2,5  
-----  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 52...60

Testing:  
1st rack travel in: 8,00  
Speed rpm : 1065...1075  
2nd rack travel in: 4,00  
Speed rpm : 1080...1110  
3rd rack travel in: 0,30...1,70  
Speed rpm : 1250

LOW IDLE 1  
Control lever

position degrees: 20...28  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 1,00  
Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 550...610  
Speed rpm : 700  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 500  
Rack travel in m: 10,60...10,70  
2nd speed rpm : 700  
Rack travel in m: 10,10...10,30  
3rd speed rpm : 900  
Rack travel in m: 9,20...9,50  
4th speed rpm : 1025  
Rack travel in m: 9,00...9,10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 500  
Del.quantity cm3/ : 47,5...49,5  
1000 s: (45,5...51,5)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 700  
Del.quantity cm3/ : 47,5...49,5  
1000 s: (45,5...51,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1065...1075

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00...21,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Del.quantity cm3/ : 0,75...1,05

#### Remarks:

K01

: POCLAIN

APPLICATION  
Excavator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MM 5,9 A 8  
 Edition : 04.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 288  
 Injection pump  
 Pump designation : PES6A80D32ORS1271  
 Governor  
 Governor design. : RSV350...1100A2B664-1R

Customer-spec. information  
 Customer : MM

Engine : D 229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
 : (2,15...2,35)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

K02

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 9,20...9,30  
 Del. quantity cm<sup>3</sup>/ : 4,65...4,75  
 100 s: (4,45...4,95)  
 Spread cm<sup>3</sup> : 0,25  
 100 s: (0,4)  
 2nd speed rpm : 350  
 Rack travel in mm : 6,90...7,10  
 Del. quantity cm<sup>3</sup>/ : 0,7...1,0  
 100 s: (0,4...1,3)  
 Spread cm<sup>3</sup> : 0,2  
 100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 4,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 46,5...47,5  
 1000 : (44,0...50,0)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 8,20  
 Speed rpm : 1140...1150  
 2nd rack travel in: 4,00  
 Speed rpm : 1170...1200  
 3rd rack travel in: 0,00...1,70  
 Speed rpm : 1350

## LOW IDLE 1

Control lever

position degrees: 13...21  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,50

Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 510...570  
Speed rpm : 650  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 9,20...9,30  
2nd speed rpm : 500  
Rack travel in m: 9,20...9,40  
3rd speed rpm : 400  
Rack travel in m: 10,10...10,70

BREAKAWAY

1st version  
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,40...6,60

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MM 5,9 A 7  
Edition : 04.03.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 9 407 083 289  
  
Injection pump  
Pump designation : PES6A80D32ORS1271  
Governor  
Governor design. : RSV350...1200A2B1108  
-1R

Customer-spec. information  
Customer : MM

Engine : D 229-6

1st version kW : 84.6  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
: (2,15...2,35)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1200  
-----  
Rack travel in mm : 9,70...9,80  
-----  
Del. quantity cm<sup>3</sup>/ : 5,25...5,35  
-----  
100 s: (5,05...5,55)  
-----  
Spread cm<sup>3</sup> : 0,25  
-----  
100 s: (0,4)  
-----  
2nd speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Del. quantity cm<sup>3</sup>/ : 0,70...1,00  
100 s: (0,40...1,30)  
Spread cm<sup>3</sup> : 0,2  
100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
Click setting x : 4,2

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1200  
Del. quantity : 52,5...53,5  
1000 : (50,5...55,5)  
Spread cm<sup>3</sup> : 2,2  
1000 : (4,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 42...50

Testing:  
1st rack travel in: 8,70  
Speed rpm : 1240...1250  
2nd rack travel in: 4,00  
Speed rpm : 1290...1320  
3rd rack travel in: 0,00...1,70

Speed rpm : 1450

#### LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6,40...6,60

#### Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 350

Rack travel in mm : 6,90...7,10

Rack travel in mm : 2,00

Speed rpm : 630...690

Speed rpm : 800

Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9,70...9,80

2nd speed rpm : 1000

Rack travel in m: 10,00...10,30

3rd speed rpm : 800

Rack travel in m: 10,80...11,00

4th speed rpm : 500

Rack travel in m: 11,20...11,30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800

Del.quantity cm3/ : 57,0...59,0

1000 s: (55,0...61,0)

Spread cm3 : 3,5

1000 s: (4,5)

Speed rpm : 500

Del.quantity cm3/ : 56,5...58,5

1000 s: (55,5...60,5)

Spread cm3 : 3,5

1000 s: (4,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19,00

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 5,9 A 6  
 Edition : 04.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 290  
 Injection pump  
 Pump designation : PES6A80D32ORS1271  
 Governor  
 Governor design. : RSV350...1000A1B2029  
 -1R

Customer-spec. information  
 Customer : MWM

Engine : D 229-6

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3  
 : (2,15...2,35)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

K06

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,70...9,80  
 Del. quantity cm<sup>3</sup>/ : 4,9...5,0  
 100 s: (4,7...5,2)  
 Spread cm<sup>3</sup> : 0,24  
 100 s: (0,4)  
 2nd speed rpm : 350  
 Rack travel in mm : 6,90...7,10  
 Del. quantity cm<sup>3</sup>/ : 0,7...1,0  
 100 s: (0,4...1,3)  
 Spread cm<sup>3</sup> : 0,2  
 100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 5,2

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1000  
 Del. quantity : 49,0...50,0  
 1000 : (47,5...51,5)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 51...59

Testing:  
 1st rack travel in: 8,70  
 Speed rpm : 1040...1050  
 2nd rack travel in: 4,00  
 Speed rpm : 1070...1100  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1200

LOW IDLE 1



Control lever  
position degrees: 20...28  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,50

Testing:  
Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 540...600  
Speed rpm : 670  
Maximum rack trave: 1,00

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 9,70...9,80  
2nd speed rpm : 700  
Rack travel in m: 10,60...10,90  
3rd speed rpm : 500  
Rack travel in m: 11,20...11,30

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 700  
Del.quantity cm3/ : 53,0...55,0  
1000 s: 51,0...57,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 53,5...55,5  
1000 s: (51,5...57,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### BREAKAWAY

1st version  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00

Remarks:  
: FIAT ALLIS

APPLICATION  
Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 N 17  
Edition : 04.03.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 9 407 083 292  
  
Injection pump  
Pump designation : PES6A90D410RS2293  
Governor  
Governor design. : RSV350...1200A1B1086  
-1L

Customer-spec. information  
Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352 A

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,1...2,3)

Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

K08

betw. rack trav. m: 10,50  
& maximum rack tra: 21,00  
Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 8,65...8,75

Del. quantity cm<sup>3</sup>/ : 5,05...5,15

100 s: (4,8...5,3)

Spread cm<sup>3</sup> : 0,3

100 s: (0,5)

2nd speed rpm : 350

Rack travel in mm : 7,40...7,60

Del. quantity cm<sup>3</sup>/ : 1,35...1,75

100 s: (0,95...2,15)

Spread cm<sup>3</sup> : 0,25

100 s: (0,45)

3rd speed rpm : 900

Rack travel in mm : 9,7...10,0

Del. quantity cm<sup>3</sup>/ : 5,75...5,95

100 s: (5,4...6,3)

Spread cm<sup>3</sup> : 0,4

100 s: (0,55)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : 6,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 50,5...51,5

1000 : (48,5...53,5)

Spread cm<sup>3</sup> : 3,0

1000 : (5,0)

## RATED SPEED

1st version

Control lever

position degrees: 66...74

Testing:

1st rack travel in: 7,65

Speed rpm : 1245...1255

2nd rack travel in: 4,00

Speed rpm : 1265...1295  
3rd rack travel in: 0,30...1,70  
Speed rpm : 1400

#### LOW IDLE 1

Control lever  
position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7,00

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 7,40...7,50  
Rack travel in mm : 2,00  
Speed rpm : 560...620  
Speed rpm : 750  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 8,65...8,75  
2nd speed rpm : 900  
Rack travel in m: 9,70...10,00  
3rd speed rpm : 500  
Rack travel in m: 10,15...10,25

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 900  
Del.quantity cm3/ : 57,5...59,5  
1000 s: (55,0...62,0)  
Spread cm3 : 4,0  
1000 s: (5,5)  
Speed rpm : 500  
Del.quantity cm3/ : 51,5...53,5  
1000 s: (49,0...56,0)  
Spread cm3 : 4,0  
1000 s: (5,5)

#### BREAKAWAY

##### 1st version

Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 13,70...14,30

Remarks:

: KOMATSU

#### APPLICATION

Tractor (tractor engines)

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : MB 5,7 N 18  
Edition : 07.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 9 407 083 293

Injection pump  
Pump designation : PES6A90D41ORS2293Z  
Governor  
Governor design. : RSV350...1250A2B776L

Customer-spec. information  
Customer : DAIMLER-BENZ-BRAS.

Engine : OM 352

### TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

### BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

### BASIC SETTING

K10

1st speed rpm : 1250

Rack travel in mm : 9,85...9,95

Del. quantity cm<sup>3</sup>/ : 6,15...6,25

100 s : (5,9...6,5)

Spread cm<sup>3</sup> : 0,3

100 s : (0,5)

2nd speed rpm : 350

Rack travel in mm : 7,40...7,60

Del. quantity cm<sup>3</sup>/ : 1,25...1,65

100 s : (0,85...2,05)

Spread cm<sup>3</sup> : 0,25

100 s : (0,45)

### GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,3...1,0

Governor spring pre-tension

Click setting x : 4,75

### FULL LOAD DELIV. AT FULL LOAD STOP

#### 1st version

Speed rpm : 1250

Del. quantity : 61,5...62,5

1000 : (59,5...64,5)

Spread cm<sup>3</sup> : 3,0

1000 : (5,0)

### RATED SPEED

#### 1st version

Control lever

position degrees: 48...56

#### Testing:

1st rack travel in: 8,85

Speed rpm : 1290...1300

2nd rack travel in: 4,00

Speed rpm : 1355...1385

3rd rack travel in: 0,30...1,70

Speed rpm : 1500

### LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7,00

#### Testing:

Speed rpm : 100

Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 7,40...7,60  
Rack travel in mm : 2,00  
Speed rpm : 620...680  
Speed rpm : 750  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 9,85...9,95  
2nd speed rpm : 500  
Rack travel in m: 9,85...10,05  
3rd speed rpm : 400  
Rack travel in m: 10,80...11,40

#### BREAKAWAY

1st version  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 13,70...14,30

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,90...7,10

Remarks:

#### APPLICATION

Combine-harvester

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 3,9 B 5  
 Edition : 07.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 296  
 Injection pump  
 Pump designation : PES4A80D32ORS1282  
 Governor  
 Governor design. : RSV350...1500A2B2122  
 -2R

Customer-spec. information  
 Customer : MWM

Engine : D 229-4

## TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30  
 : (2,15...2,35)  
 Rack travel in mm : 9,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

K12

betw. rack trav. m: 10,50  
 & maximum rack tra: 21,00  
 Difference ° CS : 4...5

## BASIC SETTING

1st speed rpm : 1500  
 -----  
 Rack travel in mm : 10,25...10,35  
 -----  
 Del. quantity cm<sup>3</sup>/ : 6,0...6,1  
 -----  
 100 s: (5,8...6,3)  
 -----  
 Spread cm<sup>3</sup> : 0,25  
 -----  
 100 s: (0,40)  
 -----  
 2nd speed rpm : 350  
 Rack travel in mm : 6,90...7,10  
 Del. quantity cm<sup>3</sup>/ : 0,75...1,05  
 100 s: (0,45...1,35)  
 Spread cm<sup>3</sup> : 0,2  
 100 s: (0,35)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,3...1,0

Governor spring pre-tension  
 Click setting x : 6,0

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1500  
 Del. quantity : 60,0...61,0  
 1000 : (59,0...62,0)  
 Spread cm<sup>3</sup> : 2,5  
 1000 : (4,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 62...70

Testing:  
 1st rack travel in: 9,25  
 Speed rpm : 1540...1550  
 2nd rack travel in: 4,00  
 Speed rpm : 1610...1640  
 3rd rack travel in: 0,30...1,70  
 Speed rpm : 1800

## LOW IDLE 1

Control lever

position degrees: 22...30  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 350  
Rack travel in mm : 6,90...7,10  
Rack travel in mm : 2,00  
Speed rpm : 670...730  
Speed rpm : 800  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1500  
Rack travel in m: 10,25...10,35  
2nd speed rpm : 1100  
Rack travel in m: 10,60...10,90  
3rd speed rpm : 800  
Rack travel in m: 11,00...11,30  
4th speed rpm : 500  
Rack travel in m: 11,20...11,30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1100  
Del.quantity cm3/ : 60,5...62,5  
1000 s: (59,0...64,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 800  
Del.quantity cm3/ : 58,5...60,5  
1000 s: (57,0...62,0)  
Spread cm3 : 3,5  
1000 s: (4,5)  
Speed rpm : 500  
Del.quantity cm3/ : 55,0...57,0  
1000 s: (53,5...58,5)  
Spread cm3 : 3,5  
1000 s: (4,5)

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19,00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6,40...6,60

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 3,0 b 1  
Edition : 11.03.88  
Replaces : 18.9.87  
Test oil : ISO-4113

Combination no. : 0 400 463 146

Injection pump  
Pump designation : PES3A75D410/3RS1324  
EP type number : 0 410 473 977  
Governor  
Governor design. : RSV325...900A7C602-1  
L

Governer no. : 0 420 232 388

Customer-spec. information  
Customer : KHD

Engine : F3L912

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.90

Del. quantity cm<sup>3</sup>/ : 5.2...5.3

100 s : (5.1...5.5)

Spread cm<sup>3</sup> : 0.2

100 s : (0.4)

2nd speed rpm : 325.0

Rack travel in mm : 8.6...8.8

Del. quantity cm<sup>3</sup>/ : 0.7...1.3

100 s : (0.5...1.4)

Spread cm<sup>3</sup> : 0.2

100 s : (0.3)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 52.5...53.5

1000 : (51.0...55.0)

Spread cm<sup>3</sup> : 2.50

1000 : (4.00)

## RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.40

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 955...985

3rd rack travel in: 4.00

Speed rpm : 1005...1035



4th rack travel in: 1100  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 8.2  
Speed rpm : 325  
Rack travel in mm : 8.60...8.80  
Rack travel in mm : 2.00  
Speed rpm : 525...585

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 700  
Rack travel in m: 12.70...12.90  
2nd speed rpm : 500  
Rack travel in m: 13.00...13.10  
4th speed rpm : 765  
Rack travel in m: 12.60...12.80

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del.quantity cm3/ : 49.0...50.0  
1000 s: (47.5...51.5)  
Spread cm3 : 2.50  
1000 s: (4.00)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.40  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100.0...110.0  
1000 s: (97.0...113.0)  
Rack travel in mm : 19.50...21.00

Remarks:

:

#### APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 19,0 h  
 Edition : 25.03.88  
 Replaces : 18.12.87  
 Test oil : ISO-4113

Combination no. : 0 400 640 100

Injection pump  
 Pump designation : PE12A95D61QLS2453  
 EP type number : 0 410 690 998  
 Governor  
 Governor design. : RQV300...1150AB1047D  
 L  
 Governor no. : 0 420 214 242

Customer-spec. information  
 Customer : KHD

Engine : F12L413FW

1st version kW : 230,0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 4- 9- 8- 5- 2-  
 11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
 180-195-240-255-300-  
 315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.20...9.30

Del.quantity cm<sup>3</sup>/ : 8.1...8.3

100 s : (7.9...8.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.2...1.8

100 s : (0.9...2.0)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.30

2nd speed rpm : 395  
 travel mm : 2.20...2.60

3rd speed rpm : 615  
 travel mm : 3.10...3.60

4th speed rpm : 1195  
 travel mm : 8.40...8.50

5th speed rpm : 1235  
 travel mm : 9.00...9.20

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 81.0...83.0  
1000 : (79.0...85.0)  
Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 60...68

Testing:  
1st rack travel in: 8.20  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1230...1260  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 9...17

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed rpm : 320...425

#### TORQUE CONTROL

Dimension a mm : 1.00  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.20...9.30  
2nd speed rpm : 500  
Rack travel in m: 10.20...10.30  
3rd speed rpm : 935  
Rack travel in m: 9.90...10.10  
4th speed rpm : 1045  
Rack travel in m: 9.40...9.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del. quantity cm3/ : 93.5...96.5  
1000 s: (91.0...99.0)  
Speed rpm : 750  
Del. quantity cm3/ : 84.5...87.5  
1000 s: (82.0...90.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.20  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 15.40...15.80

Remarks:

:  
Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

2. Set fuel delivery in fuel-delivery  
characteristics with stop above the  
governor housing.

#### APPLICATION

Below-ground operation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 8,7 d 1  
 Edition : 25.03.88  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 400 646 202

Injection pump  
 Pump designation : PE6A90D410RS2124  
 EP type number : 0 410 696 141  
 Governor  
 Governor design. : RGV300...1250AB815DL  
 Governor no. : 0 420 214 164

Customer-spec. information  
 Customer : DAIMLER-BENZ

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness : 6.00X2.00X600  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25  
 : (2.10...2.30)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

K18

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

---

Rack travel in mm : 10.20...10.30

---

Del. quantity cm<sup>3</sup>/ : 8.6...8.7

---

100 s : (8.4...8.9)

---

Spread cm<sup>3</sup> : 0.3

---

100 s : (0.4)

---

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 1.0...1.6

100 s : (0.8...1.8)

Spread cm<sup>3</sup> : 0.2

100 s : (0.4)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.50

2nd speed rpm : 550  
 travel mm : 3.20...3.80

3rd speed rpm : 750  
 travel mm : 4.60...4.90

4th speed rpm : 1290  
 travel mm : 8.40...8.60

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1290

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del. quantity : 86.0...87.0

1000 : (84.0...89.0)

Spread cm<sup>3</sup> : 3.00

1000 : (4.50)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 61...69

Testing:

1st rack travel in: 9.20  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1360...1390  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 9...17

Testing:

Speed rpm : 100  
Minimum rack trave: 7.90  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 375...475

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm3/ : 83.5...86.5  
1000 s: (81.5...88.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1290...1300

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 115.0...125.0  
1000 s: (112.0...128.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 15,8 c  
Edition : 22.04.88  
Replaces : 9.82  
Test oil : ISO-4113

Combination no. : 0 400 649 208

Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1150AB1047D  
L

Governer no. : 0 420 214 242

Customer-spec. information  
Customer : KHD

Engine : F10L413FW

1st version kW : 192.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.10...9.20

Del. quantity cm<sup>3</sup>/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 1.2...1.8  
100 s: (0.9...2.0)

Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.30

2nd speed rpm : 395  
travel mm : 2.20...2.60

3rd speed rpm : 615  
travel mm : 3.10...3.60

4th speed rpm : 1195  
travel mm : 8.40...8.50

5th speed rpm : 1235  
travel mm : 9.00...9.20

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1

Speed rpm : 1180  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Del. quantity : 81.0...83.0  
1000 : (79.0...85.0)

Spread        cm<sup>3</sup> : 3.50  
              1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 60...68

Testing:  
1st rack travel in: 8.10  
Speed        rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed        rpm : 1235...1260  
4th rack travel in: 1350  
Speed        rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 9...17

Testing:  
Speed        rpm : 100  
Minimum rack travel: 8.00  
Speed        rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION  
Speed        rpm : 320...425

TORQUE CONTROL  
Dimension a mm : 1.00  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.10...9.20  
2nd speed rpm : 500  
Rack travel in m: 10.10...10.20  
3rd speed rpm : 935  
Rack travel in m: 9.80...10.00  
4th speed rpm : 1045  
Rack travel in m: 9.30...9.50

#### START CUT-OUT

Speed        1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed        rpm : 650  
Del. quantity cm<sup>3</sup>/ : 93.5...96.5  
              1000 s: (91.0...99.0)  
Speed        rpm : 750  
Del. quantity cm<sup>3</sup>/ : 84.5...87.5  
              1000 s: (82.0...90.0)

#### BREAKAWAY

K21

1st version  
1mm rack travel less than

full load rack tr: 8.10  
Speed        rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed        rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
              1000 s: (117.0...133.0)  
Rack travel in mm : 15.40...15.80

Remarks:  
              :

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

When accelerating from engine speed  
"0", no voltage in starting solenoid.  
2. Set fuel delivery in fuel-delivery  
characteristics with stop above the  
governor housing.

APPLICATION  
Below-ground operation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 15,8 n1  
 Edition : 25.03.88  
 Replaces : 7.12.87  
 Test oil : ISO-4113  
 Combination no. : 0 400 649 219  
 Injection pump  
 Pump designation : PE10A95D610/4LS2589  
 EP type number : 0 410 699 994  
 Governor  
 Governor design. : RQV300...1150AB1047D  
 L  
 Governor no. : 0 420 214 242

Customer-spec. information  
 Customer : KHD

Engine : F10L413 FW

1st version kW : 177.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
 : (1.45...1.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 1-10- 9- 4- 3- 6- 5-  
 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.30...9.40

Del. quantity cm3/ : 6.9...7.1

100 s: (6.7...7.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.4

Del. quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 400

travel mm : 2.20...2.60

3rd speed rpm : 600

travel mm : 3.00...3.50

4th speed rpm : 1195

travel mm : 8.40...8.50

5th speed rpm : 1235

travel mm : 9.10...9.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 69.0...71.0

1000 : (67.0...73.0)



Spread      cm<sup>3</sup> : 3.50  
             1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 61...69

Testing:  
1st rack travel in: 8.30  
Speed      rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed      rpm : 1230...1260  
4th rack travel in: 1350  
Speed      rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 10...18

Testing:  
Speed      rpm : 100  
Minimum rack travel: 7.80  
Speed      rpm : 300  
Rack travel in mm : 7.20...7.40

CONSTANT REGULATION  
Speed      rpm : 320...430

TORQUE CONTROL  
Dimension a mm : 1.00  
Torque control curve - 1st version  
1st speed      rpm : 1150  
Rack travel in m: 9.30...9.40  
2nd speed      rpm : 500  
Rack travel in m: 10.30...10.40  
3rd speed      rpm : 935  
Rack travel in m: 10.00...10.20  
4th speed      rpm : 1045  
Rack travel in m: 9.50...9.70

#### START CUT-OUT

Speed      1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed      rpm : 800  
Del. quantity cm<sup>3</sup>/ : 75.5...78.5  
             1000 s: (73.0...81.0)  
Speed      rpm : 650  
Del. quantity cm<sup>3</sup>/ : 93.5...96.5  
             1000 s: (91.0...99.0)

#### RACK STOP ADJUSTMENT

Speed      rpm : 500

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.30  
Speed      rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed      rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
             1000 s: (117.0...133.0)  
Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

When accelerating from engine speed  
"0", no voltage in starting solenoid.  
2. Set fuel delivery in fuel-delivery  
characteristics with stop above the  
governor housing.

APPLICATION  
Below-ground operation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 8,3 n 6  
 Edition : 06.04.88  
 Replaces : 12.9.86  
 Test oil : ISO-4113

Combination no. : 0 400 676 185

Injection pump  
 Pump designation : PE6A95D41ORS2575  
 EP type number : 0 410 696 984  
 Governor  
 Governor design. : RSV250...1200ASC2198  
 -3L  
 Governor no. : 0 420 232 452

Customer-spec. information  
 Customer : DAF

Engine : DH 825

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 7.50...10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed rpm : 1200

---

Rack travel in mm : 10.40...10.50

---

Del. quantity cm<sup>3</sup>/ : 7.3...7.4

---

100 s: (7.1...7.6)

---

Spread cm<sup>3</sup> : 0.3

---

100 s: (0.6)

---

2nd speed rpm : 250.0

Rack travel in mm : 6.1...6.3

Del. quantity cm<sup>3</sup>/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 73.5...74.5

1000 : (71.5...76.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 59...67

Testing:

1st rack travel in: 9.40  
Speed rpm : 1240...1250  
2nd rack travel in: 4.00  
Speed rpm : 1300...1330  
3rd rack travel in: 4.00  
Speed rpm : 1340...1370  
4th rack travel in: 1505  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.7  
Speed rpm : 250  
Rack travel in mm : 6.10...6.30  
Rack travel in mm : 2.00  
Speed rpm : 655...715

#### TORQUE CONTROL

Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 10.40...10.50  
2nd speed rpm : 500  
Rack travel in m: 11.20...11.30  
3rd speed rpm : 800  
Rack travel in m: 11.10...11.20  
4th speed rpm : 940  
Rack travel in m: 10.70...11.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 75.0...77.0  
1000 s: (72.5...79.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.40  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 135.0...145.0  
1000 s: (132.0...148.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250

K25

Rack travel in mm : 6.10...6.30  
Del.quantity cm<sup>3</sup>/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 4,0 a 9  
Edition : 17.03.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 844 090  
  
Injection pump  
Pump designation : PES4A90D410RS2666-2  
Governor  
Governor design. : RQV300...1400AB1065-SL

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM364

1st version kW : 66.0  
Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,25...2,35  
: (2,2...2,4)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1400  
Rack travel in mm : 10,90...11,00  
Del. quantity cm<sup>3</sup>/ : 6,3...6,4  
100 s : (6,1...6,6)  
Spread cm<sup>3</sup> : 0,3  
100 s : (0,5)  
  
2nd speed rpm : 300  
Rack travel in mm : 8,60...8,80  
Del. quantity cm<sup>3</sup>/ : 0,8...1,2  
100 s : (0,6...1,4)  
Spread cm<sup>3</sup> : 0,2  
100 s : (0,4)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0,8...1,3  
2nd speed rpm : 500  
travel mm : 2,3...2,8  
3rd speed rpm : 750  
travel mm : 4,1...4,3  
4th speed rpm : 1500  
travel mm : 8,5...8,6

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1500  
Rack travel in mm : 15,20...17,80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1400  
Del. quantity : 63,0...64,0  
1000 : (61,0...66,0)  
Spread cm<sup>3</sup> : 3,0  
1000 : (5,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 59...67

Testing:  
1st rack travel in: 9,90

Speed rpm : 1450...1460  
2nd rack travel in: 4,00  
Speed rpm : 1560...1590  
4th rack travel in: 1630  
Speed rpm : 0,00...1,00

LOW IDLE 1  
Control lever  
position degrees: 20...28

Testing:  
Speed rpm : 100  
Minimum rack travel: 10,20  
Speed rpm : 300  
Rack travel in mm : 8,60...8,80

CONSTANT REGULATION  
Speed rpm : 540...680

TORQUE CONTROL  
Dimension a mm : 1,00  
Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 10,90...11,00  
2nd speed rpm : 630  
Rack travel in m: 12,20...12,30  
3rd speed rpm : 900  
Rack travel in m: 11,50...11,70

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 630  
Del. quantity cm<sup>3</sup>/ : 55,5...58,5  
1000 s: (53,0...61,0)  
Speed rpm : 900  
Del. quantity cm<sup>3</sup>/ : 54,5...57,5  
1000 s: (52,0...60,0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9,90  
Speed rpm : 1450...1460

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 78,0...88,0  
1000 s: (75,0...91,0)  
Rack travel in mm : 17,0...17,40

Remarks:  
Set shutoff stop to contact at  
3.0...3.5 mm control-rod travel.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11.1 y  
Edition : 25.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 400 846 325

Injection pump  
Pump designation : PES6A9SD41OLS2409  
EP type number : 0 410 896 962  
Governor  
Governor design. : RQ250/1150AB839DL  
Governor no. : 0 420 202 247

Customer-spec. information  
Customer : MAN

Engine : D2556MX/MXF

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.30...1.40  
: (1.25...1.45)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.50...11.60

Del. quantity cm<sup>3</sup>/ : 11.7...11.9  
100 s: (11.5...12.1)

Spread cm<sup>3</sup> : 0.3  
100 s: (0.6)

2nd speed rpm : 250.0  
Rack travel in mm : 6.4...6.6  
Del. quantity cm<sup>3</sup>/ : 1.0...1.6  
100 s: (0.7...1.8)

Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 600  
Rack travel in mm : 15.40...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Del. quantity : 117.5...119.5  
1000 : (115.5...121.5)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

## RATED SPEED

### 1st version

#### Setting point:

Speed rpm : 600  
Rack travel in mm : 15.9

#### Testing:

1st rack travel in: 11.50  
Speed rpm : 1195...1210  
2nd rack travel in: 4.00  
Speed rpm : 1250...1280  
3rd rack travel in: 4.00

## LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.5

Testing:

Speed rpm : 150  
Minimum rack trave: 7.20  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 320...360

TORQUE CONTROL

Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 11.50...11.60  
2nd speed rpm : 500  
Rack travel in m: 11.90...12.00  
3rd speed rpm : 925  
Rack travel in m: 11.80...11.90  
4th speed rpm : 1000  
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm3/ : 116.0...119.0  
1000 s: (114.0...121.0)  
Speed rpm : 500  
Del.quantity cm3/ : <118.5  
1000 s: (<120.5)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 11.50  
Speed rpm : 1195...1210

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...126.5  
1000 s: (113.5...129.5)  
Rack travel in mm : 13.70...14.30

Remarks:

;

Set idle stop at 250 min -1 to a  
control-rod travel of 6.5 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 v 10  
Edition : 25.03.88  
Replaces : 18.9.87  
Test oil : ISO-4113

Combination no. : 0 400 846 493

Injection pump  
Pump designation : PES6A900410RS2596  
EP type number : 0 410 896 073  
Governor  
Governor design. : RQV300...1400AB1120-1L  
Governor no. : 0 420 212 157

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM352A

1st version kW : 124.0  
Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 11.90...12.00

Del. quantity cm<sup>3</sup>/ : 7.3...7.4

100 s : (7.1...7.6)

Spread cm<sup>3</sup> : 0.3

100 s : (0.4)

2nd speed rpm : 300.0

Rack travel in mm : 8.5...8.7

Del. quantity cm<sup>3</sup>/ : 0.9...1.5

100 s : (0.7...1.7)

Spread cm<sup>3</sup> : 0.2

100 s : (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Aneroid pressure h : 700

Del. quantity : 73.5...74.5

1000 : (71.5...76.5)

Spread cm<sup>3</sup> : 3.00

1000 : (4.50)

## RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 10.90

Speed rpm : 1440...1450

2nd rack travel in: 4.00

Speed rpm : 1570...1600

4th rack travel in: 1750

Speed rpm : 0.00...1.00



LOW IDLE 1  
Control lever  
position degrees: 22...30

Testing:  
Speed rpm : 100  
Minimum rack travel: 10.10  
Speed rpm : 300  
Rack travel in mm : 8.50...8.70

CONSTANT REGULATION  
Speed rpm : 590...660

TORQUE CONTROL  
Dimension a mm : 1.10  
Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 11.90...12.00  
2nd speed rpm : 500  
Rack travel in m: 13.00...13.10  
3rd speed rpm : 1000  
Rack travel in m: 12.70...12.90  
4th speed rpm : 1200  
Rack travel in m: 12.10...12.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 13.00...13.10

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 12.00...12.10  
2nd pressure hPa : 320  
Rack travel in m: 12.70...12.80  
3rd pressure hPa : 220  
Rack travel in m: 12.20...12.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 67.5...69.5  
1000 s: (65.5...71.5)  
Aneroid pressure h: -  
Speed rpm : 500

Del. quantity cm<sup>3</sup>/ : 56.0...58.0  
1000 s: (54.0...60.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.90  
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 71.0...81.0  
1000 s: (68.0...84.0)  
Rack travel in mm : 14.90...15.30

Remarks:

:  
Set shutoff stop to contact at  
3.0...3.5 mm control-rod travel.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,4 b4  
Edition : 19.04.88  
Replaces : 22.1.88  
Test oil : ISO-4113

Combination no. : 0 400 846 532

Injection pump  
Pump designation : PES6A9SD410LS2639-1  
EP type number : 0 410 896 920  
Governor  
Governor design. : RQ250/1100AB1137-9L  
Governor no. : 0 420 200 091

Customer-spec. information  
Customer : MAN

Engine : D2566MF/220

1st version kW : 162.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
(1.45...1.55)

Rack travel in mm : 9.00...12.00

L04

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.30...14.40

Del.quantity cm3/ : 13.0...13.2

100 s: (12.8...13.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.4...7.6

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 130.0...132.0

1000 : (128.0...134.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.80

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1350

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 7.5

#### Testing:

Speed rpm : 100

Minimum rack trave: 8.90

Speed rpm : 250

Rack travel in mm : 7.40...7.60

Rack travel in mm : 2.00

Speed rpm : 390...430

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.80...12.90

2nd speed rpm : 600

Rack travel in m: 14.30...14.40

3rd speed rpm : 865

Rack travel in m: 13.80...14.00

4th speed rpm : 940

Rack travel in m: 13.10...13.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 130.0...133.0

1000 s: (127.5...135.5)

Speed rpm : 1100

Del.quantity cm<sup>3</sup>/ : 122.0...126.0

1000 s: (119.5...128.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 105.0...115.0

1000 s: (102.0...118.0)

Remarks:

: MAN-NR. 2-7514

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 d  
Edition : 10.5.88  
Replaces : -  
Test oil : ISP-4113  
  
Combination no. : 0 400 874 212  
  
Injection pump  
Pump designation : PES4A85D42OLS2459  
Governor  
Governor design. : RSV375...1000A2B782  
DR

Customer-spec. information  
Customer : CASE

Engine : A-336 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.05...2.15  
: (2.00...2.20)

Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0.5 (0.75)

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 11.60...1.70  
Del. quantity cm3/ : 7.5...7.7  
100 s: (7.4...7.8)  
Spread cm3 : 0.3  
100 s: (-)  
  
2nd speed rpm : 375  
Rack travel in mm : 7.40...7.60  
Del. quantity cm3/ : 1.4...2.0  
100 s: -  
Spread cm3 : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del. quantity : 75.0...77.0  
1000 : (74.0...78.0)  
Spread cm3 : 3.0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 36...44

Testing:  
1st rack travel in: 10.60  
Speed rpm : 1040...1050  
2nd rack travel in: 3.80  
Speed rpm : 1105...1135  
4th rack travel in: 1150  
Speed rpm : 0.40...2.60

## LOW IDLE 1

Control lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 375

Rack travel in mm : 7.50

Testing:

Speed rpm : 150  
Minimum rack travel: 19.00  
Speed rpm : 375  
Rack travel in mm : 7.30...7.70  
Rack travel in mm : 2.70  
Speed rpm : 435...465  
Speed rpm : 550  
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 11.60...11.70  
2nd speed rpm : 680  
Rack travel in m: 12.00...12.20  
3rd speed rpm : 400  
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 75.0...79.5  
1000 s: (74.0...80.5)  
Spread cm3 : -  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <79.2  
1000 s: (-)  
Spread cm3 : -  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60  
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 125.0...130.0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100  
Del.quantity cm3/ : 10.4...16.4  
1000 s: (-)

LOW IDLE

L07

Speed rpm : 375  
Del.quantity cm3/ : 14.0...20.0  
1000 s: (-)

Remarks:

: CASE NO. A-139028

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 4,0 b 1  
 Edition : 25.03.88  
 Replaces : 26.2.88  
 Test oil : ISO-4113  
 Combination no. : 0 400 874 246  
 Injection pump  
 Pump designation : PES4A90D41ORS2666  
 EP type number : 0 410 894 029  
 Governor  
 Governor design. : RSV350...1250AOC2006  
 -5L  
 Governor no. : 0 420 232 497

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM364

1st version kW : 63.0  
 Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,25...2,35  
 : (2,20...2,40)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1230

Rack travel in mm : 10.70...10.80

Del. quantity cm3/ : 6.2...6.3

100 s: (6.0...6.5)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 7.9...8.1

Del. quantity cm3/ : 1.0...1.4

100 s: (0.8...1.6)

Spread cm3 : 0.2

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.25

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1230

Del. quantity : 62.0...63.0

1000 : (60.0...65.0)

Spread cm3 : 3.00

1000 : (5.00)

## RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 9.70

Speed rpm : 1270...1280

2nd rack travel in: 4.00

Speed rpm : 1350...1380

4th rack travel in: 1520

Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever

position degrees: 31...39

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 8.0

#### Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 350

Rack travel in mm : 7.90...8.10

Rack travel in mm : 2.00

Speed rpm : 480...540

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1230

Rack travel in m: 10.70...10.80

2nd speed rpm : 500

Rack travel in m: 12.00...12.10

3rd speed rpm : 800

Rack travel in m: 11.50...11.70

4th speed rpm : 1000

Rack travel in m: 11.00...11.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 500

Del.quantity cm3/ : 54.0...56.0

1000 s: (51.5...58.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.70

Speed rpm : 1270...1280

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 16.30...16.70

#### LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.90...8.10

L09

Del.quantity cm3/ : 10.0...14.0

1000 s: (8.0...16.0)

Spread cm3 : 2.50

1000 s: (4.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 f  
Edition : 15.5.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 876 186  
Injection pump  
Pump designation : PES6A95D410RS2380  
Governor  
Governor design. : RSV400...1100A2B647  
DL

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6404 T

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 413 385 007

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 1,90...2,00  
: (1,85...2,05)

Rack travel in mm : 9,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9.00...9.10  
Del. quantity cm<sup>3</sup>/ : 7.8...8.2  
100 s : (-)  
Spread cm<sup>3</sup> : 0.4  
100 s : (-)  
2nd speed rpm : 200  
Rack travel in mm : 5.90...6.10  
Del. quantity cm<sup>3</sup>/ : 0.7...1.5  
100 s : (-)  
Spread cm<sup>3</sup> : -  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.40

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Aneroid pressure h : 700  
Del. quantity : 86.0...92.0  
1000 : (84.0...94.0)  
Spread cm<sup>3</sup> : 4.0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 40...48

Testing:  
1st rack travel in: 16.00  
Speed rpm : 1100  
2nd rack travel in: 12.30  
Speed rpm : 1140...1150  
3rd rack travel in: 8.00  
Speed rpm : 1185...1215

## LOW IDLE 1



Control lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.60

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 400  
Rack travel in mm : 5.40...5.80  
Rack travel in mm : 2.65  
Speed rpm : 530...570  
Speed rpm : 750  
Maximum rack travel: 1.00

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: -  
2nd speed rpm : 900  
Rack travel in m: 0.30...0.50  
3rd speed rpm : 750  
Rack travel in m: 0.70...1.00  
4th speed rpm : 450  
Rack travel in m: 0.70...1.00

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 550  
Pressure hPa : 145  
Rack travel mm : MIN.

Measurement  
Speed 1/min : 550

1st pressure hPa : 435  
Rack travel in m: MAX.

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 750  
Del. quantity cm<sup>3</sup>/ : 96.0...101.0  
1000 s: (94.0...103.0)  
Spread cm<sup>3</sup> : -  
1000 s: (-)  
Aneroid pressure h: -  
Speed rpm : 550  
Del. quantity cm<sup>3</sup>/ : 64.0...70.0  
1000 s: (62.0...72.0)  
Spread cm<sup>3</sup> : -  
1000 s: (-)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: ?  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 160.0  
1000 s: (-)

#### HIGH IDLE

1st version  
Speed rpm : 1200  
Del. quantity cm<sup>3</sup>/ : 21.0...30.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 400  
Del. quantity cm<sup>3</sup>/ : 12.0...16.0  
1000 s: (-)

Remarks:  
: 4430

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5.7 s 1  
 Edition : 25.03.88  
 Replaces : 12.9.86  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 218  
 Injection pump  
 Pump designation : PES6A90D41ORS2293  
 EP type number : 0 410 896 031  
 Governor  
 Governor design. : RSV350...1400AOC1080  
 Governor no. : 0 420 232 408

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 352

1st version kW : 92.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25  
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.70...9.80

Del. quantity cm<sup>3</sup>/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...7.2

Del. quantity cm<sup>3</sup>/ : 1.0...1.2

100 s: (0.8...1.4)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 63.0...64.0

1000 : (61.0...66.0)

Spread cm<sup>3</sup> : 3.00

1000 : (4.50)

## RATED SPEED

1st version

Control lever

position degrees: 68...76

Testing:

1st rack travel in: 8.70

Speed rpm : 1440...1445

2nd rack travel in: 4.00

Speed rpm : 1473...1486

3rd rack travel in: 4.00

Speed rpm : 1510...1540  
4th rack travel in: 1570  
Speed rpm : 0.30...1.40  
5th rack travel in: 1445...1455  
Speed rpm : 8.70

#### LOW IDLE 1

Control lever  
position degrees: -3  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.80

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 6.70...6.90  
Rack travel in mm : 2.00  
Speed rpm : 450...510

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 9.70...9.80  
2nd speed rpm : 600  
Rack travel in m: 9.90...10.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 51.0...53.0  
1000 s: (49.0...55.0)  
Speed rpm : 850  
Del. quantity cm<sup>3</sup>/ : 56.0...58.0  
1000 s: (53.5...60.5)

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 78.0...88.0  
1000 s: (75.0...91.0)  
Rack travel in mm : 15.00...15.40

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.60...7.20  
Del. quantity cm<sup>3</sup>/ : 10.0...12.0  
1000 s: (8.0...14.0)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (4.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 e  
Edition : 2.5.88  
Replaces : 9.76  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 244  
  
Injection pump  
Pump designation : PES6A95D41ORS2479  
Governor  
Governor design. : RSV400...1100A2B768D  
L

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6404 T

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 413 385 007

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 1.90...2.00  
: (1.85...2.05)  
Rack travel in mm : 9.80...9.90  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.5 (0.75)

## BASIC SETTING

1st speed rpm : 1100  
Rack travel in mm : 9.80...9.90  
Del. quantity cm3/ : 8.8...9.0  
100 s : (8.5...9.3)  
Spread cm3 : 0.3  
100 s : (-)  
  
2nd speed rpm : 400  
Rack travel in mm : ?  
Del. quantity cm3/ : 1.2...1.6  
100 s : (-)  
Spread cm3 : 0.3  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Aneroid pressure h : 700  
Del. quantity : 87.0...91.0  
1000 : (85.0...93.0)  
Spread cm3 : 3.0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 40...48

Testing:  
1st rack travel in: 8.80  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1285...1315  
4th rack travel in: 1300...1350  
Speed rpm : 0.30...1.00

## LOW IDLE 1

Control lever  
position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.70

#### Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 400

Rack travel in mm : 5.40...5.80

Rack travel in mm : 2.60

Speed rpm : 530...570

Speed rpm : 750

Maximum rack trave: 1.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.80...9.90

2nd speed rpm : 900

Rack travel in m: 10.10...10.30

3rd speed rpm : 750

Rack travel in m: 10.50...10.90

4th speed rpm : 450

Rack travel in m: 10.50...10.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 550

Pressure hPa : 150

Rack travel mm : -

Measurement

Speed 1/min : 550

1st pressure hPa : 430

Rack travel in m: 9.80...9.90

#### FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 750

Del.quantity cm3/ : 96.0...101.0

1000 s: (94.0...103.0)

Spread cm3 : -

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 63.5...70.5

1000 s: (61.5...72.5)

Spread cm3 : -

1000 s: (-)

#### BREAKAWAY

L15

1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 160.0

1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1200

Del.quantity cm3/ : 20.0...30.0

1000 s: (-)

#### LOW IDLE

Speed rpm : 400

Del.quantity cm3/ : 12.0...16.0

1000 s: (-)

Remarks:

: 4430

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,7 a  
 Edition : 16.5.88  
 Replaces : -  
 Test oil : ISO-4133  
 Combination no. : 0 400 876 272  
 Injection pump  
 Pump designation : PES6A9SD410RS2545  
 Governor  
 Governor design. : RSV400...1100A7B2026  
 L

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6466 T

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : 1 413 385 007  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 008  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27  
 Prestroke mm : 1.85...1.95  
 : (1.80...2.00)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1080  
 Rack travel in mm : 10.20...10.30  
 Del. quantity cm<sup>3</sup>/ : 9.4...9.8  
 100 s : (9.2...10.0)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (-)  
 2nd speed rpm : 400  
 Rack travel in mm : 5.70...5.90  
 Del. quantity cm<sup>3</sup>/ : 1.2...1.6  
 100 s : (-)  
 Spread cm<sup>3</sup> : -  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1080  
 Del. quantity : 94.0...98.0  
 1000 : (92.0...100.0)  
 Spread cm<sup>3</sup> : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 66...74

Testing:  
 1st rack travel in: 9.20  
 Speed rpm : 1115...1125  
 2nd rack travel in: 5.00  
 Speed rpm : 1130...1160  
 4th rack travel in: 1200  
 Speed rpm : 0.30...1.70

LOW IDLE 1  
 Control lever

position degrees: 25...33  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.80

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 400  
Rack travel in mm : 5.70...5.90  
Rack travel in mm : 2.00  
Speed rpm : 520...580

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 750  
Rack travel in m: 10.20...10.40  
3rd speed rpm : 450  
Rack travel in m: 10.90...11.50

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 160.0...190.0  
1000 s: (-)

#### HIGH IDLE

1st version  
Speed rpm : 1145  
Del.quantity cm3/ : 23.0...33.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 400  
Del.quantity cm3/ : 12.0...16.0  
1000 s: (-)

#### Remarks:

Start-of-delivery mark = 15.5° after  
start of delivery cyl. 1.

#### APPLICATION

L17

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 c 2  
 Edition : 25.03.88  
 Replaces : 11.12.87  
 Test oil : ISO-4113

Combination no. : 0 400 876 335

Injection pump  
 Pump designation : PES6A90D410RS2710  
 EP type number : 0 410 896 082  
 Governor  
 Governor design. : RSV350...1200A1C1154  
 L  
 Governor no. : 0 420 232 468

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 74.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.25...2.35  
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200  
 -----  
 Rack travel in mm : 9.30...9.40  
 -----  
 Del. quantity cm<sup>3</sup>/ : 5.1...5.2  
 -----  
 100 s : (4.9...5.4)  
 -----  
 Spread cm<sup>3</sup> : 0.3  
 -----  
 100 s : (0.4)  
 -----  
 2nd speed rpm : 370.0  
 Rack travel in mm : 7.9...8.5  
 Del. quantity cm<sup>3</sup>/ : 1.0...1.2  
 100 s : (0.8...1.4)  
 Spread cm<sup>3</sup> : 0.2  
 100 s : (0.4)

## GUIDE SLEEVE POSITION

Governor spring pre-tension  
 Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Del. quantity : 51.0...52.0  
 1000 : (49.0...54.0)  
 Spread cm<sup>3</sup> : 3.00  
 1000 : (4.50)

## RATED SPEED

1st version  
 Control lever  
 position degrees : 59...67

Testing:  
 1st rack travel in : 8.30  
 Speed rpm : 1240...1245  
 2nd rack travel in : 4.00  
 Speed rpm : 1261...1274  
 3rd rack travel in : 4.00  
 Speed rpm : 1300...1330  
 4th rack travel in : 1400  
 Speed rpm : 0.30...1.40  
 5th rack travel in : 1255...1265



Speed rpm : 8.30

#### LOW IDLE 1

Control lever

position degrees: -3

Setting point w/out bumper spring

Speed rpm : 370

Rack travel in mm : 8.20

#### Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 370

Rack travel in mm : 8.10...8.30

Rack travel in mm : 2.00

Speed rpm : 460...520

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.30...9.40

2nd speed rpm : 600

Rack travel in m: 10.30...10.50

3rd speed rpm : 900

Rack travel in m: 9.80...10.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600

Del.quantity cm3/ : 41.0...43.0

1000 s: (38.5...45.5)

Speed rpm : 900

Del.quantity cm3/ : 46.0...49.0

1000 s: (43.5...51.5)

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 85.0...95.0

1000 s: (82.0...98.0)

Rack travel in mm : 17.30...17.70

#### LOW IDLE

Speed rpm : 370

Rack travel in mm : 7.90...8.50

Del.quantity cm3/ : 10.0...12.0

1000 s: (8.0...14.0)

Spread cm3 : 2.50

1000 s: (4.50)

Remarks:

:

#### APPLICATION

Unimog

L19

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,6 W  
Edition : 14.01.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 400 876 345

Injection pump  
Pump designation : PES6A1000410RS2754  
EP type number : 0 410 806 002  
Governor  
Governor design. : RSV400...1100A2C2229  
L

Governer no. : 0 420 232 492

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6076 TF

1st version kW : 142.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05  
: (2.90...3.10)  
Rack travel in mm : 10.50...10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.0...5.2

Del.quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.00

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1205...1215  
3rd rack travel in: 4.00  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 16...24  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 4.6

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 400  
Rack travel in mm : 5.00...5.20  
Rack travel in mm : 2.00  
Speed rpm : 550...610

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12.00...12.10  
2nd speed rpm : 700  
Rack travel in m: 13.90...14.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del. quantity cm<sup>3</sup>/ : 151.0...154.0  
1000 s: (148.5...156.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1145...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 130.0...150.0  
1000 s: (125.0...155.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.00...5.20  
Del. quantity cm<sup>3</sup>/ : 12.0...16.0  
1000 s: (9.5...18.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

Adjustment without torque-control  
spring retainer with 1 mm less  
Start-of-delivery mark = 12,5° after  
start of delivery cyl. 1. rque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,6 x  
Edition : 14.01.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 400 876 348

Injection pump  
Pump designation : PES6A1000410RS2754  
EP type number : 0 410 806 002  
Governor  
Governor design. : RSV400...1100A2C2204  
-2L

Governer no. : 9 420 234 177

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6466 TT

1st version kW : 124.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05  
: (2.90...3.10)  
Rack travel in mm : 10.50...10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 105.0...107.0

1000 : (103.0...109.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.00  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1205...1215  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 20...28  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 4.5

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 400  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 2.00  
Speed rpm : 560...620

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.00...11.10  
2nd speed rpm : 700  
Rack travel in m: 12.10...12.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del. quantity cm<sup>3</sup>/ : 127.5...130.5  
1000 s: (125.0...133.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 130.0...150.0  
1000 s: (125.0...155.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 4.90...5.10  
Del. quantity cm<sup>3</sup>/ : 12.0...16.0  
1000 s: (9.5...18.5)

Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

Adjustment without torque-control  
spring retainer with 1 mm less  
Start-of-delivery mark = 12,5° after  
start of delivery cyl. 1. rque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 a 9  
 Edition : 5.5.88  
 Replaces : 12.74  
 Test oil : ISO-4113

Combination no. : 0 401 276 029

Injection pump  
 Pump designation : PES6A9SD42OLS3024  
 Governor  
 Governor design. : RSV375...1100A2B659  
 DR

Customer-spec. information  
 Customer : CASE

Engine : A 504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.5 (0.75)

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.35...12.45

Del. quantity cm<sup>3</sup>/ : 13.6...13.8  
 100 s : (13.4...14.0)

Spread cm<sup>3</sup> : 0.4  
 100 s : (-)

2nd speed rpm : 375  
 Rack travel in mm : 5.80...6.00  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s : (-)

Spread cm<sup>3</sup> : -  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 136.0...138.0  
 1000 : (134.0...140.0)

Spread cm<sup>3</sup> : 4.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 11.35  
 Speed rpm : 1140...1155  
 2nd rack travel in: 3.60  
 Speed rpm : 1180...1220  
 4th rack travel in: 1280  
 Speed rpm : 0.20...1.20

## LOW IDLE 1

Control lever  
 position degrees: 15...23  
 Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 5.90

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 375  
Rack travel in mm : 5.80...6.00  
Speed rpm : 550  
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12.35...12.45  
2nd speed rpm : 750  
Rack travel in m: 12.65...12.75  
3rd speed rpm : 400  
Rack travel in m: 12.90...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 144.0...147.0  
1000 s: (142.0...149.0)  
Spread cm3 : -  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <147.0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 11.35  
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...140.0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200  
Del.quantity cm3/ : 21.0...27.0  
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del.quantity cm3/ : 16.5...22.5  
1000 s: (-)

Remarks:

: 2470

Adjustment without torque-control  
spring retainer with 1 mm less  
APPLICATION travel. Increase in  
Tractor (tractor engines) torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 10,0 b5  
Edition : 06.04.88  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 846 286V  
Injection pump  
Pump designation : PE6P100A32ORS100V  
EP type number : 0 411 806 123  
Governor  
Governor design. : RQV250...1100PA232/2  
R  
Governor no. : 0 421 813 134  
Customer-spec. information  
Customer : VOLVO

Engine : T(H)D 100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Test nozzle holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test lines : 1 680 750 004  
Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27  
Prestroke mm : 2.60...2.70  
(2.55...2.75)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
Rack travel in mm : 13.00...13.10  
Del. quantity cm3/ : 14.5...14.7  
100 s : (14.3...14.9)  
Spread cm3 : 0.4  
100 s : (0.6)  
2nd speed rpm : 250.0  
Rack travel in mm : 5.9...6.1  
Del. quantity cm3/ : 1.1...1.5  
100 s : (0.8...1.7)  
Spread cm3 : 0.2  
100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1100  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Aneroid pressure h: 500  
Del. quantity : 145.0...147.0  
1000 : (143.0...149.0)  
Spread cm3 : 4.00  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 43...51

Testing:  
1st rack travel in: 12.00  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1230...1260  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

## LOW IDLE 1



Control lever  
position degrees: 8...16

Testing:

Speed rpm : 100  
Minimum rack trave: 7.60  
Speed rpm : 250  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 320...380

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : 500  
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.80...11.00  
2nd pressure hPa : 240  
Rack travel in m: 12.70...12.90  
3rd pressure hPa : 80  
Rack travel in m: 11.20...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -  
Speed rpm : 700  
Del.quantity cm3/ : 105.0...107.0  
1000 s: (103.0...109.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00  
Speed rpm : 1140...1150

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.90...6.10  
Del.quantity cm3/ : 11.0...15.0  
1000 s: (8.5...17.5)  
Spread cm3 : 2.50  
1000 s: (5.00)

Remarks:

;

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,6 a  
Edition : 29.04.88  
Replaces : 11.85  
Test oil : ISO-4113

Combination no. : 0 401 846 494

Injection pump  
Pump designation : PE6P100A720RS473  
EP type number : 0 411 806 196  
Governor  
Governor design. : RQ300/1100PA269-1  
Governor no. : 0 421 801 237

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 355

1st version kW : 177.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del. quantity cm3/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.1...8.3

Del. quantity cm3/ : 1.7...2.3

100 s: (1.4...2.5)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.40...13.90

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 125.0...127.0

1000 : (123.0...129.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.70

Speed rpm : 1145...1160

2nd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.1

#### Testing:

Speed rpm : 200  
Minimum rack travel: 7.50  
Speed rpm : 300  
Rack travel in mm : 6.00...6.30  
Rack travel in mm : 2.00  
Speed rpm : 350...390

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 115.0...119.0  
1000 s: (112.5...121.5)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.00)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.70  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 150.0...170.0  
1000 s: (146.0...174.0)

Remarks:

;

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 8,8 l  
Edition : 06.04.88  
Replaces : 11.3.88  
Test oil : ISO-4113

Combination no. : 0 401 846 499

Injection pump  
Pump designation : PE6P120A32ORS474  
EP type number : 0 411 826 134  
Governor  
Governor design. : RGV275...1200PA425-3  
Governor no. : 0 421 813 441

Customer-spec. information  
Customer : RVI

Engine : MIDS062030

1st version kW : 168.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.50...3.60  
                  : (3.45...3.65)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1200  
-----  
Rack travel in mm : 11.90...12.00  
-----  
Del. quantity cm3/ : 15.1...15.3  
-----  
100 s : (14.8...15.6)  
-----  
Spread cm3 : 0.5  
-----  
100 s : (0.9)  
-----

2nd speed rpm : 275.0  
Rack travel in mm : 5.4...5.6  
Del. quantity cm3/ : 1.5...2.1  
100 s : (1.2...2.4)  
Spread cm3 : 0.8  
100 s : (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 275  
travel mm : 1.20...1.40  
2nd speed rpm : 400  
travel mm : 2.90...3.40  
3rd speed rpm : 900  
travel mm : 5.80...6.00  
4th speed rpm : 1200  
travel mm : 7.80...8.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1250  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1200  
Aneroid pressure h : 700  
Del. quantity : 151.0...153.0  
1000 : (148.0...156.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 62...70

Testing:  
1st rack travel in: 10.90  
Speed rpm : 1265...1275  
2nd rack travel in: 4.00  
Speed rpm : 1380...1410  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 66...74

Testing:  
Speed rpm : 200  
Minimum rack travel: 9.10  
Speed rpm : 275  
Rack travel in mm : 6.30...6.50

CONSTANT REGULATION  
Speed rpm : 275...360

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 11.90...12.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.70...10.80  
2nd pressure hPa : 195  
Rack travel in m: 11.60...11.70  
3rd pressure hPa : 175  
Rack travel in m: 11.10...11.30

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 750

M03

Del.quantity cm3/ : 139.0...145.0  
1000 s: (136.0...148.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 94.0...96.0  
1000 s: (91.0...99.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.90  
Speed rpm : 1265...1275

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 105.0...125.0  
1000 s: (101.0...129.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 6.30...6.50  
Del.quantity cm3/ : 15.0...21.0  
1000 s: (12.0...24.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:

Start-of-delivery mark at the "INJ"  
marking

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,6 y6  
 Edition : 11.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 537  
 Injection pump  
 Pump designation : PE6P120A32ORS415-1  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RQ250/1000PA417-7  
 Governor no. : 0 421 801 382

Customer-spec. information  
 Customer : DAF

Engine : DKZ 1160

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

MD4

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.50...12.60

Del. quantity cm<sup>3</sup>/ : 20.6...20.8

100 s : (20.3...21.1)

Spread cm<sup>3</sup> : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s : (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s : (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 850

Aneroid pressure h : 700

Del. quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 15.8

### Testing:

1st rack travel in: 11.50

Speed rpm : 1035...1050

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.5

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.70  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 450...490

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 12.70...12.80  
2nd speed rpm : 990  
Rack travel in m: 12.60...12.80

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 12.50...12.60

##### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 340  
Rack travel in m: 11.80...11.90  
3rd pressure hPa : 280  
Rack travel in m: 10.60...11.00

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm3/ : 140.0...142.0  
1000 s: (137.0...145.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 1035...1050

#### STARTING FUEL DELIVERY

MOS

Speed rpm : 100  
Del. quantity cm3/ : 305.0...345.0  
1000 s: (305.0...345.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.40...6.60

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,6 y7  
 Edition : 11.03.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 538  
 Injection pump  
 Pump designation : PE6P120A32ORS415-1  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RQ250/1100PA417-8  
 Governor no. : 0 421 801 383

Customer-spec. information  
 Customer : DAF

Engine : DKV 1160

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

MD6

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 11.00...11.10

Del. quantity cm<sup>3</sup>/ : 16.7...16.9

100 s : (16.4...17.2)

Spread cm<sup>3</sup> : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s : (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s : (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 700

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 650

Aneroid pressure h : 700

Del. quantity : 167.0...169.0

1000 : (164.0...172.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 700

Rack travel in mm : 15.8

Testing:

1st rack travel in: 8.90

Speed rpm : 1130...1145

2nd rack travel in: 4.00

Speed rpm : 1180...1210

4th rack travel in: 1300

Speed rpm : 0.00...1.00



#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.3

#### Testing:

Speed rpm : 100

Minimum rack travel: 7.20

Speed rpm : 250

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

Speed rpm : 440...480

#### TORQUE CONTROL

Dimension a mm : 0.77

Torque control curve - 1st version

1st speed rpm : 650

Rack travel in m: 11.20...11.30

2nd speed rpm : 1090

Rack travel in m: 9.90...10.10

3rd speed rpm : 825

Rack travel in m: 10.70...10.90

4th speed rpm : 900

Rack travel in m: 10.30...10.60

Aneroid/Altitude

Compensator Test

#### 1st version

Setting

Speed rpm : 600

Pressure hPa : 700

Rack travel mm : 11.00...11.10

#### Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 290

Rack travel in m: 10.70...10.90

3rd pressure hPa : 260

Rack travel in m: 10.20...10.40

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700

Speed rpm : 1090

Del.quantity cm3/ : 153.0...157.0

1000 s: (150.0...160.0)

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/ : 135.0...137.0

1000 s: (132.0...140.0)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90

Speed rpm : 1130...1145

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 320.0...360.0

1000 s: (320.0...360.0)

Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.20...6.40

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : ENA 10.1 a  
Edition : 25.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 846 544

Injection pump  
Pump designation : PE6P100A82OLS130  
EP type number : 0 411 806 179  
Governor  
Governor design. : RQ250/1050PA627-1  
Governor no. : 0 421 801 407

Customer-spec. information  
Customer : ENASA

Engine : 95 A1 BZ,

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.00...12.10

Del. quantity cm<sup>3</sup>/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1030

Del. quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

## Testing:

1st rack travel in: 11.00

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1250

Speed rpm : 0.00...1.00

## LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 350...390

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 118.0...133.0

1000 s: (114.0...137.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Special-purpose vehicle

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : ENA 10,1 b  
Edition : 25.03.88  
Replaces : 15.1.88  
Test oil : ISO-4113

Combination no. : 0 401 846 546

Injection pump  
Pump designation : PE6P100A820LS130  
EP type number : 0 411 806 179  
Governor  
Governor design. : RQV250...1050PA807-1  
Governor no. : 0 421 813 665

Customer-spec. information  
Customer : ENASA

Engine : 95 A1 BX,

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.00...12.10

Del. quantity cm<sup>3</sup>/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.90...1.30

2nd speed rpm : 350

travel mm : 1.60...2.20

3rd speed rpm : 700

travel mm : 4.40...5.00

4th speed rpm : 1095

travel mm : 7.90...8.10

5th speed rpm : 1185

travel mm : 8.80...9.20

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1030

Del. quantity : 119.0...121.0

1000 : (117.0...123.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 41...49

Testing:  
1st rack travel in: 11.00  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 10...18

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.50  
Speed rpm : 250  
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION  
Speed rpm : 250...400

#### START CUT-OUT

Speed 1/min : 170 (150)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.00  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 260.0...280.0  
1000 s: (256.0...284.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION  
Special-purpose vehicle



1st version  
Control lever  
position degrees: 41...49

Testing:  
1st rack travel in: 11.80  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 9...17

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.20  
Speed rpm : 250  
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION  
Speed rpm : 250...380

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 12.80...12.90  
2nd speed rpm : 700  
Rack travel in m: 13.30...13.50  
3rd speed rpm : 850  
Rack travel in m: 13.00...13.20

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 13.00...13.20

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.80...11.20  
2nd pressure hPa : 440  
Rack travel in m: 12.50...12.60  
3rd pressure hPa : 290  
Rack travel in m: 11.50...11.70

START CUT-OUT

Speed 1/min : 170 (150)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 600  
Del.quantity cm3/ : 178.0...182.0  
1000 s: (175.0...185.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 132.0...134.0  
1000 s: (129.0...137.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.80  
Speed rpm : 1040...1050

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 150.0...170.0  
1000 s: (146.0...174.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

APPLICATION  
Special-purpose vehicle

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : ENA 10.1 d  
Edition : 25.03.88  
Replaces : 12.2.88  
Test oil : ISO-4113

Combination no. : 0 401 846 549

Injection pump  
Pump designation : PE6P100A820LS503  
EP type number : 0 411 806 197  
Governor  
Governor design. : RQV250...1000PA811  
Governor no. : 0 421 813 556

Customer-spec. information  
Customer : ENASA

Engine : 95 T1 AX,BX

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 14.20...14.30

Del. quantity cm<sup>3</sup>/ : 16.5...16.7

100 s : (16.3...16.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.7...7.9

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
travel mm : 1.00...1.40

2nd speed rpm : 400  
travel mm : 2.20...2.80

3rd speed rpm : 650  
travel mm : 4.50...5.10

4th speed rpm : 1050  
travel mm : 8.50...8.70

5th speed rpm : 1140  
travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h : 900

Del. quantity : 165.0...167.0

1000 : (163.0...169.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED



1st version  
Control lever  
position degrees: 42...50

Testing:  
1st rack travel in: 13.20  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 9...17

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.50  
Speed rpm : 250  
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION  
Speed rpm : 250...350

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 14.20...14.30  
2nd speed rpm : 700  
Rack travel in m: 14.70...14.90  
3rd speed rpm : 850  
Rack travel in m: 14.40...14.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 14.50...14.70

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 12.90...13.30  
2nd pressure hPa : 400  
Rack travel in m: 14.10...14.20  
3rd pressure hPa : 300  
Rack travel in m: 13.40...13.60

START CUT-OUT

Speed 1/min : 170 (190)

M15

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 700  
Del.quantity cm3/ : 170.0...174.0  
1000 s: (168.0...176.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 130.0...132.0  
1000 s: (127.0...135.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.20  
Speed rpm : 1040...1050

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 180.0...200.0  
1000 s: (176.0...204.0)

## LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Special-purpose vehicle

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : ENA 10.1 e  
Edition : 25.03.88  
Replaces : 11.3.88  
Test oil : ISO-4113

Combination no. : 0 401 846 552

Injection pump  
Pump designation : PE6P100A82QLS503-1  
EP type number : 0 411 806 198  
Governor  
Governor design. : RQ250/1000PA352-1  
Governor no. : 0 421 801 412

Customer-spec. information  
Customer : ENASA

Engine : 95 T1 AZ,CZ

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90  
: (2.85...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 14.20...14.30

Del. quantity cm<sup>3</sup>/ : 16.5...16.7

100 s : (16.3...16.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.8...8.0

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 980

Aneroid pressure h : 900

Del. quantity : 165.0...167.0

1000 : (163.0...169.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

### Testing:

1st rack travel in: 13.20

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 350...390

#### TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 14.20...14.30

2nd speed rpm : 700

Rack travel in m: 14.70...14.90

3rd speed rpm : 850

Rack travel in m: 14.40...14.60

#### Aneroid/Altitude

#### Compensator Test

#### 1st version

#### Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 14.60...14.90

#### Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 12.90...13.30

2nd pressure hPa : 400

Rack travel in m: 14.10...14.20

3rd pressure hPa : 300

Rack travel in m: 13.40...13.60

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 900

Speed rpm : 700

Del. quantity cm<sup>3</sup>/ : 170.0...174.0

1000 s: (168.0...176.0)

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm<sup>3</sup>/ : 130.0...132.0

1000 s: (127.0...135.0)

#### BREAKAWAY

#### 1st version

M17

1mm rack travel less than

full load rack tr: 13.20

Speed rpm : 1045...1060

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 150.0...170.0

1000 s: (146.0...174.0)

#### LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

#### APPLICATION

Special-purpose vehicle

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,6 y8  
 Edition : 06.04.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 553  
 Injection pump  
 Pump designation : PE6P120A320RS415-1  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RQ250/1100PA417-9  
 Governor no. : 0 421 801 431

Customer-spec. information  
 Customer : DAF

Engine : DKX ATI

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.60...11.70

Del. quantity cm<sup>3</sup>/ : 18.7...18.9

100 s: (18.4...19.2)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del. quantity cm<sup>3</sup>/ : 1.4...2.0  
 100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 700

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 187.0...189.0  
 1000 : (184.0...192.0)

Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 700

Rack travel in mm : 15.8

Testing:

1st rack travel in: 10.60

Speed rpm : 1125...1140

2nd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1300

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.5

#### Testing:

Speed rpm : 100

Minimum rack trave: 7.40

Speed rpm : 250

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 450...490

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 11.80...11.90

2nd speed rpm : 1080

Rack travel in m: 11.70...11.90

#### Aneroid/Altitude

Compensator Test

#### 1st version

Setting

Speed rpm : 600

Pressure hPa : 700

Rack travel mm : 11.60...11.70

#### Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 300

Rack travel in m: 11.30...11.40

3rd pressure hPa : 250

Rack travel in m: 10.60...10.90

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/ : 140.0...142.0

1000 s: (137.0...145.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1125...1140

#### STARTING FUEL DELIVERY

M19

Speed rpm : 100

Del.quantity cm3/ : 305.0...345.0

1000 s: (305.0...345.0)

Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.40...6.60

Remarks:

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 12,0 i  
 Edition : 07.03.88  
 Replaces : 24.7.87  
 Test oil : ISO-4113

Combination no. : 0 401 846 773

Injection pump  
 Pump designation : PE6P120A320RS3116  
 EP type number : 0 411 826 727  
 Governor  
 Governor design. : RQV250...1025PA657  
 Governor no. : 0 421 813 368

Customer-spec. information  
 Customer : VOLVO

Engine : TD120G

1st version kW : 242.7  
 Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1,50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70  
 : (2.55...2.75)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
 -----  
 Rack travel in mm : 11.40...11.50  
 -----  
 Del. quantity cm<sup>3</sup>/ : 19.6...19.8  
 -----  
 100 s: (19.3...20.1)  
 -----  
 Spread cm<sup>3</sup> : 0.5  
 -----  
 100 s: (0.9)  
 -----  
 2nd speed rpm : 250.0  
 Rack travel in mm : 5.5...5.7  
 Del. quantity cm<sup>3</sup>/ : 1.8...2.3  
 100 s: (1.5...2.5)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 1.10...1.30  
 2nd speed rpm : 500  
 travel mm : 4.10...4.90  
 3rd speed rpm : 700  
 travel mm : 6.30...6.70  
 4th speed rpm : 900  
 travel mm : 6.30...6.70  
 5th speed rpm : 1025  
 travel mm : 7.30...7.80

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1080  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Aneroid pressure h: 700

Del.quantity : 196.5...198.5  
1000 : (193.5...201.5)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 59...67

Testing:  
1st rack travel in: 10.40  
Speed rpm : 1085...1095  
2nd rack travel in: 4.00  
Speed rpm : 1145...1175  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 6...14

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.00  
Speed rpm : 250  
Rack travel in mm : 5.50...5.70  
Rack travel in mm : 2.00  
Speed rpm : 350...410

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 11.40...11.50

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.00...9.10  
2nd pressure hPa : 450  
Rack travel in m: 11.20...11.30  
3rd pressure hPa : 170  
Rack travel in m: 9.30...9.60

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 700  
Del.quantity cm3/ : 151.0...153.0  
1000 s: (148.0...156.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.40  
Speed rpm : 1085...1095

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...270.0  
1000 s: (236.0...274.0)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.50...5.70  
Del.quantity cm3/ : 18.0...23.0  
1000 s: (15.5...25.5)  
Spread cm3 : 5.00  
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,0 e 3  
 Edition : 19.4.88  
 Replaces : 4.85  
 Test oil : ISO-4113

Combination no. : 0 401 846 801

Injection pump  
 Pump designation : PE6P120A32OLS3810-10  
 Governor  
 Governor design. : RQV350...1150PA720

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 421 A

1st version kW : 184.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X1,50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...44.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1-6-3-5-2-4

Phasing : 0-75-120-195-240-315  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.00...11.10

Del. quantity cm<sup>3</sup>/ : 16.3...16.5

100 s : (16.0...16.8)

Spread cm<sup>3</sup> : 0.5

100 s : (0.9)

2nd speed rpm : 350

Rack travel in mm : 4.80...5.00

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s : (-)

Spread cm<sup>3</sup> : 0.8

100 s : (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 0.60...0.90

2nd speed rpm : 580  
 travel mm : 3.60...3.70

3rd speed rpm : 870  
 travel mm : 5.20...5.30

4th speed rpm : 1150  
 travel mm : 7.60

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1250

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 700

Del. quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm<sup>3</sup> : 5.0

1000 : (9.0)

## RATED SPEED



1st version  
Control lever  
position degrees: 58...66

Testing:  
1st rack travel in: 10.00  
Speed rpm : 1175...1185  
2nd rack travel in: 4.00  
Speed rpm : 1280...1290  
4th rack travel in: 1360  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Control lever  
position degrees: 7...15

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.70  
Speed rpm : 350  
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION  
Speed rpm : 350...500

TORQUE CONTROL  
Dimension a mm : 0.30  
Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 11.00...11.10  
2nd speed rpm : 850  
Rack travel in m: 11.30...11.50  
3rd speed rpm : 950  
Rack travel in m: 11.10...11.20

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 11.30...11.50

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.80...11.00  
2nd pressure hPa : 450  
Rack travel in m: 11.10...11.20

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 1150

Del.quantity cm3/ : 128.0...131.0 \*  
1000 s: (125.0...134.0)  
Spread cm3 : 8.0  
1000 s: (12.0)  
Aneroid pressure h: 700  
Speed rpm : 600  
Del.quantity cm3/ : 170.0...176.0  
1000 s: (167.0...179.0)  
Spread cm3 : 8.0  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 146.0...148.0  
1000 s: (143.0...151.0)  
Spread cm3 : 8.0  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1175...1185

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:  
\* = Set at reduced-delivery stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 d3  
Edition : 11.12.87  
Replaces : 9.10.87  
Test oil : ISO-4113

Combination no. : 0 401 846 842

Injection pump  
Pump designation : PE6P120A32ORS3183-1Z  
EP type number : 0 411 826 760  
Governor  
Governor design. : RQ250/1000PA832-1  
Governor no. : 0 421 801 387

Customer-spec. information  
Customer : DAF

Engine : WS 225

1st version kW : 225.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
: (3.65...3.85)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.30...11.40

Del. quantity cm<sup>3</sup>/ : 18.1...18.3

100 s: (17.8...18.6)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del. quantity : 181.0...183.0

1000 : (178.0...186.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 10.30

Speed rpm : 1035...1050

2nd rack travel in: 4.00

Speed rpm : 1120...1150  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.8

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.30  
Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Rack travel in mm : 2.00  
Speed rpm : 350...390

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 11.50...11.60  
2nd speed rpm : 1000  
Rack travel in m: 11.40...11.60

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 11.30...11.40

##### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.10...10.30  
2nd pressure hPa : 330  
Rack travel in m: 11.00...11.10  
3rd pressure hPa : 260  
Rack travel in m: 10.50...10.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: -

Speed rpm : 600  
Del. quantity cm3/ : 144.0...146.0  
1000 s: (141.0...149.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.30

M25

Speed rpm : 1035...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 260.0...300.0  
1000 s: (256.0...304.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Del. quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : ENA 11,9 d  
Edition : 25.03.88  
Replaces : 7.3.88  
Test oil : ISO-4113

Combination no. : 0 401 846 862

Injection pump  
Pump designation : PE6P110A320RS3201  
EP type number : 0 411 816 753  
Governor  
Governor design. : RQ250/1050PA218-1  
Governor no. : 0 421 801 406

Customer-spec. information  
Customer : ENASA

Engine : 96 A4 AZ

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
: (3.15...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.00...12.10

Del. quantity cm<sup>3</sup>/ : 12.5...12.7

100 s: (12.2...13.0)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm<sup>3</sup>/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1030

Del. quantity : 125.0...127.0

1000 : (122.0...130.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

### 1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

## Testing:

1st rack travel in: 11.00

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1250

Speed rpm : 0.00...1.00

## LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 290...330

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 143.0...163.0

1000 s: (139.0...167.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Special-purpose vehicle

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 d8  
Edition : 07.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 846 874

Injection pump  
Pump designation : PE6P120A32ORS3183  
EP type number : 0 411 826 754  
Governor  
Governor design. : RQ250/1000PA832  
Governor no. : 0 421 801 368

Customer-spec. information  
Customer : DAF

Engine : WS 259

1st version kW : 259.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
: (3.65...3.85)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.80...12.90

Del. quantity cm3/ : 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del. quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del. quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 11.80

Speed rpm : 1035...1050

2nd rack travel in: 4.00

Speed rpm : 1125...1155  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.8

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.30  
Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Rack travel in mm : 2.00  
Speed rpm : 350...390

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 13.10...13.20  
2nd speed rpm : 1000  
Rack travel in m: 13.00...13.20

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 12.80...12.90

##### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 460  
Rack travel in m: 12.20...12.30  
3rd pressure hPa : 250  
Rack travel in m: 10.80...11.00

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -

Speed rpm : 600  
Del. quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 11.80

N01

Speed rpm : 1035...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 260.0...300.0  
1000 s: (256.0...304.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Del. quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:

## Note remarks

Combination no. : 0 401 6-16 875

Customer-spec. information  
Customer : DAF

Engine : WS 282

1st version kW : 282.0  
Rated speed : 2000

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

Test pressure, bar: 25...27

**Phasing** : 0-60-120-180-240-300

Tolerance  $\pm$  <sup>0</sup> : 0.50 (0.75)

1st speed      rpm : 850

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 22.8...23.0

100 s: (22.5...23.3)

Spread      cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

1st speed rpm : 250

travel mm : 1.40...1.60

2nd speed rpm : 400  
travel mm : 3.20...3.60

3rd speed rpm : 800  
travel mm : 5.80...6.20

4th speed rpm : 1000  
travel mm : 7.90...8.10

## Control-lever position

Degree: -1

Speed rpm : 1025

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 228.0...230.0

1000 : (225.0...233.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)



## RATED SPEED

1st version  
Control lever  
position degrees: 51...59

Testing:  
1st rack travel in: 12.40  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 16...24

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.30  
Speed rpm : 250  
Rack travel in mm : 6.60...7.00

CONSTANT REGULATION  
Speed rpm : 275...385

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 13.40...13.50

Measurement  
Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 520  
Rack travel in m: 12.60...12.70  
3rd pressure hPa : 280  
Rack travel in m: 11.00...11.20

## START CUT-OUT

Speed 1/min : 200 (220)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)

N03

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.40  
Speed rpm : 1040...1050

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 260.0...300.0  
1000 s: (256.0...304.0)

## LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Del. quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:

Note remarks

Combination no. : 0 401 846 876

Customer-spec. information  
Customer : DAF

Engine : WS 225

1st version kW : 225.0  
Rated speed : 2000

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 3.70...3.80
                  : (3.65...3.85)
Rack travel in mm : 9.00...12.00
Firing order      : 1- 5- 3- 6- 2- 4
```

**Phasing** : 0-60-120-180-240-300

Tolerance  $\pm$  <sup>0</sup> : 0,50 (0,75)

1st speed      rpm : 850

Rack travel in mm : 12,10,...,12,20

Del.quantity cm3/ : 19.9...20.1

100 s: (19.6...20.4)

Spread      cm<sup>3</sup> : 0.5

100 s: (0,9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del.quantity cm3/ : 1.4...2.0  
100 s: (1.1...2.3)

Spread      cm<sup>3</sup> : 0.8  
                 100 s: (1.2)

(B) Setting of injection pump  
with governor

|           |     |               |
|-----------|-----|---------------|
| 1st speed | rpm | : 250         |
| travel mm |     | : 1.40...1.60 |
| 2nd speed | rpm | : 400         |
| travel mm |     | : 3.20...3.60 |
| 3rd speed | rpm | : 800         |
| travel mm |     | : 5.80...6.20 |
| 4th speed | rpm | : 1000        |
| travel mm |     | : 7.90...8.10 |

## Control-lever position

Degree: -1

Speed rpm : 1025

Rack travel in mm : 15.20...17.80

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 50...58

Testing:  
1st rack travel in: 11.10  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1120...1150  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 16...24

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.30  
Speed rpm : 250  
Rack travel in mm : 6.60...7.00

CONSTANT REGULATION  
Speed rpm : 275...385

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 12.10...12.20

Measurement  
Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 370  
Rack travel in m: 11.70...11.80  
3rd pressure hPa : 240  
Rack travel in m: 10.80...11.00

## START CUT-OUT

Speed 1/min : 200 (220)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 147.0...149.0  
1000 s: (144.0...152.0)

N05

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.10  
Speed rpm : 1040...1050

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 260.0...300.0  
1000 s: (256.0...304.0)

## LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Del. quantity cm<sup>3</sup>/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 e7  
 Edition : 07.03.88  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 846 877

Injection pump  
 Pump designation : PE6P120A32ORS3183  
 EP type number : 0 411 826 754  
 Governor  
 Governor design. : RQV250...1000PA851-2  
 Governor no. : 0 421 813 606

Customer-spec. information  
 Customer : DAF

Engine : WS 259

1st version kW : 259.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 1.40...1.60

2nd speed rpm : 400  
 travel mm : 3.20...3.60

3rd speed rpm : 800  
 travel mm : 5.80...6.20

4th speed rpm : 1000  
 travel mm : 7.90...8.10

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1025

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 51...59

Testing:  
1st rack travel in: 11.80  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1120...1150  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 16...24

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.30  
Speed rpm : 250  
Rack travel in mm : 6.60...7.00

CONSTANT REGULATION  
Speed rpm : 275...385

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 12.80...12.90

Measurement  
Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 460  
Rack travel in m: 12.20...12.30  
3rd pressure hPa : 250  
Rack travel in m: 10.80...11.00

## START CUT-OUT

Speed 1/min : 200 (0)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm3/ : 145.0...147.0  
1000 s: (142.0...150.0)

NO7

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.80  
Speed rpm : 1040...1050

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 260.0...300.0  
1000 s: (256.0...304.0)

## LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Del. quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 d9  
Edition : 07.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 846 878

Injection pump  
Pump designation : PE6P120A32ORS3183Z  
EP type number : 0 411 826 777  
Governor  
Governor design. : RQ250/1000PA832-1  
Governor no. : 0 421 801 387

Customer-spec. information  
Customer : DAF

Engine : WS 225

1st version kW : 225.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
: (3.65...3.85)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del. quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 11.10

Speed rpm : 1035...1050

2nd rack travel in: 4.00

Speed rpm : 1120...1150  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.8

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.30  
Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Rack travel in mm : 2.00  
Speed rpm : 350...390

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 12.40...12.50  
2nd speed rpm : 1000  
Rack travel in m: 12.30...12.50

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 12.10...12.20

##### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 370  
Rack travel in m: 11.70...11.80  
3rd pressure hPa : 240  
Rack travel in m: 10.80...11.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: -

Speed rpm : 600  
Del. quantity cm3/ : 147.0...149.0  
1000 s: (144.0...152.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.10

N09

Speed rpm : 1035...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 260.0...300.0  
1000 s: (256.0...304.0)

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...7.00  
Del. quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

APPLICATION  
Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,0 s 9  
 Edition : 22.04.88  
 Replaces : 18.12.87  
 Test oil : ISO-4113

Combination no. : 0 401 846 880

Injection pump  
 Pump designation : PE6P110A32OLS3835-1  
 EP type number : 0 411 816 755  
 Governor  
 Governor design. : RQ300/1050PA187-19  
 Governor no. : 0 421 801 428

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM441

1st version kW : 160,0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.00...13.10

Del. quantity cm<sup>3</sup>/ : 12.6...12.8

100 s: (12.2...13.0)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.8...9.0

Del. quantity cm<sup>3</sup>/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.60...14.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 126.0...128.0

1000 : (122.5...130.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 14.0

Testing:

1st rack travel in: 12.00

Speed rpm : 1095...1110



2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1300  
Speed rpm : 0.00...2.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.9

#### Testing:

Speed rpm : 200  
Minimum rack trave: 8.50  
Speed rpm : 300  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 400...440

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1050  
Del.quantity cm3/ : 138.0...142.0  
1000 s: (135.0...145.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 12.00  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PEN 12,2 a  
Edition : 26.02.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 846 882  
  
Injection pump  
Pump designation : PE6P120A32ORS3206-1  
EP type number : 0 411 826 775  
Governor  
Governor design. : RQ750PA783-1  
Governor no. : 0 421 801 432

Customer-spec. information  
Customer : VOLVO-PENTA

Engine : TAMD 122 A

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3,50...3,60  
: (3,45...3,65)  
Rack travel in mm : 9,00...12,00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
-----  
Rack travel in mm : 12.40...12.50  
-----  
Del. quantity cm<sup>3</sup>/ : 29.7...29.9  
-----  
100 s: (29.4...30.2)  
-----  
Spread cm<sup>3</sup> : 0.5  
-----  
100 s: (0.9)  
-----

2nd speed rpm : 300.0  
Rack travel in mm : 5.1...5.3  
Del. quantity cm<sup>3</sup>/ : 1.7...2.3  
100 s: (1.4...2.6)  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Del. quantity : 297.0...299.0  
1000 : (294.0...302.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 21...29

Testing:  
1st rack travel in: 11.40  
Speed rpm : 750...755  
2nd rack travel in: 4.00  
Speed rpm : 776...789  
4th rack travel in: 850  
Speed rpm : 0.00...1.00

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.40  
Speed rpm : 750...755

INTERMEDIATE RATED SPEED  
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 290.0...320.0  
1000 s: (286.0...324.0)

Remarks:

:

APPLICATION  
Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 10,0q13  
 Edition : 29.04.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 883  
 Injection pump  
 Pump designation : PE6P110A32ORS3108-1  
 EP type number : 0 411 816 757  
 Governor  
 Governor design. : RQV250...1100PA649  
 Governor no. : 0 421 813 346

Customer-spec. information  
 Customer : VOLVO

Engine : THD 102 KB

1st version kW : 212.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.90...14.00

Del. quantity cm3/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del. quantity cm3/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 500

travel mm : 4.10...4.90

3rd speed rpm : 700

travel mm : 6.30...6.70

4th speed rpm : 950

travel mm : 6.30...6.70

5th speed rpm : 1100

travel mm : 7.00...7.50

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del. quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm3 : 4.00  
1000 : (7.50)

#### RATED SPEED

1st version  
Control lever  
position degrees: 60...68

#### Testing:

1st rack travel in: 12.90  
Speed rpm : 1130...1140  
2nd rack travel in: 4.00  
Speed rpm : 1200...1230  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 7...15

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.80  
Speed rpm : 250  
Rack travel in mm : 5.30...5.50

#### CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 13.90...14.00

##### Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 235

Rack travel in m: 10.00...10.10

3rd pressure hPa : 870

Rack travel in m: 13.50...13.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -

Speed rpm : 700

Del. quantity cm3/ : 111.5...114.5

1000 s: (109.0...117.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 12.90

Speed rpm : 1130...1140

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm3/ : 160.0...190.0

Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.30...5.50

Del. quantity cm3/ : 30.0...34.0

1000 s: (27.5...36.5)

Spread cm3 : 3.00  
1000 s: (6.00)

#### Remarks:

:  
Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

Delivery-valve spring pre-tension =  
2.40...2.60 mm.

Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,0 s11  
 Edition : 25.03.88  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 846 889

Injection pump  
 Pump designation : PE6P110A32OLS3835-1  
 EP type number : 0 411 816 755  
 Governor  
 Governor design. : RGV300...900PA524-10  
 Governor no. : 0 421 813 549

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 441

1st version kW : 150.0  
 Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.90...13.00

Del. quantity cm3/ : 12.6...12.8

100 s: (12.3...13.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.7...8.9

Del. quantity cm3/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.4

100 s: (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 320

travel mm : 1.50...1.70

2nd speed rpm : 400

travel mm : 2.30...2.70

3rd speed rpm : 945

travel mm : 8.30...8.70

4th speed rpm : 1000

travel mm : 9.40...10.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 920

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 126.0...128.0

1000 : (123.5...130.5)

Spread cm<sup>3</sup> : 4.00  
1000 : (8.00)

Remarks:

#### RATED SPEED

1st version  
Control lever  
position degrees: 50...58

#### Testing:

1st rack travel in: 11.90  
Speed rpm : 955...965  
2nd rack travel in: 4.00  
Speed rpm : 1010...1040  
4th rack travel in: 1100  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 16...24

#### Testing:

Speed rpm : 100  
Minimum rack travel: 9.50  
Speed rpm : 300  
Rack travel in mm : 8.00...8.20

#### CONSTANT REGULATION

Speed rpm : 300...500

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 124.0...128.0  
1000 s: (121.0...131.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 955...965

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 130.0...150.0  
1000 s: (126.0...154.0)

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : DA0 14,5 a  
Edition : 26.02.88  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 848 084  
  
Injection pump  
Pump designation : PE8P110A520/SLS851  
EP type number : 0 411 818 046  
Governor  
Governor design. : RQ900PA887  
Governor no. : 0 421 801 433

Customer-spec. information  
Customer : DAEWOO

Engine : D2848T

### TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

### BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
                  : (2.95...3.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 8- 7- 2- 6- 3- 5- 4-  
                  1

Phasing : 0-45-90-135-180-225-  
          270-315  
Tolerance + - ° : 0.50 (0.75)  
  
Time to cyl. no. : 8

### BASIC SETTING

1st speed rpm : 850  
-----  
Rack travel in mm : 11.60...11.70  
-----  
Del.quantity cm3/ : 16.0...16.3  
-----  
                  100 s: (15.7...16.5)  
-----  
Spread cm3 : 0.4  
-----  
                  100 s: (0.7)  
-----  
  
2nd speed rpm : 250.0  
Rack travel in mm : 4.9...5.1  
Del.quantity cm3/ : 1.8...2.3  
                  100 s: (1.5...2.5)  
Spread cm3 : 0.4  
                  100 s: (0.7)

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 850  
Del.quantity : 160.0...163.0  
                  1000 : (157.5...165.5)  
Spread cm3 : 4.00  
                  1000 : (7.50)

### RATED SPEED

1st version  
  
Testing:  
1st rack travel in: 10.60  
Speed rpm : 900...905  
2nd rack travel in: 4.00  
Speed rpm : 940...955  
4th rack travel in: 1000  
Speed rpm : 0.00...1.00

### STARTING FUEL DELIVERY

Speed rpm : 100

Remarks: :  
:

### APPLICATION



Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,6 a 4  
 Edition : 11.03.88  
 Replaces : 18.9.87  
 Test oil : ISO-4113

Combination no. : 0 401 848 755

Injection pump  
 Pump designation : PE8P110A32QLS3802-10  
 EP type number : 0 411 818 710  
 Governor  
 Governor design. : RQ300/1150PA437-3  
 Governor no. : 0 421 801 230

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 184.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 750  
 -----  
 Rack travel in mm : 11.30...11.40  
 -----  
 Del. quantity cm3/ : 9.9...10.1  
 -----  
 100 s: (9.6...10.3)  
 -----  
 Spread cm3 : 0.4  
 -----  
 100 s: (0.7)  
 -----

2nd speed rpm : 300.0  
 Rack travel in mm : 8.2...8.5  
 Del. quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.2)  
 Spread cm3 : 0.4  
 100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 650  
 Rack travel in mm : 13.20...14.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 750  
 Del. quantity : 99.0...101.0  
 1000 : (96.5...103.5)  
 Spread cm3 : 4.00  
 1000 : (7.00)

## RATED SPEED

1st version  
 Setting point:  
 Speed rpm : 650  
 Rack travel in mm : 13.6

Testing:  
 1st rack travel in: 10.00

Speed rpm : 1195...1210  
2nd rack travel in: 4.00  
Speed rpm : 1255...1285  
4th rack travel in: 1350  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.1

#### Testing:

Speed rpm : 100  
Minimum rack trave: 8.50  
Speed rpm : 300  
Rack travel in mm : 7.00...7.20  
Rack travel in mm : 2.00  
Speed rpm : 400...440

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 11.30...11.40  
2nd speed rpm : 1150  
Rack travel in m: 11.00...11.20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1150  
Del.quantity cm3/ : 112.0...116.0  
1000 s: (109.0...119.0)  
Spread cm3 : 7.00  
1000 s: (10.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than  
full load rack tr: 10.00  
Speed rpm : 1195...1210

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 c 7  
Edition : 25.03.88  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 848 781

Injection pump  
Pump designation : PE8P110A320LS3842  
EP type number : 0 411 818 714  
Governor  
Governor design. : RQ300/950PA827-6K  
Governor no. : 0 421 803 098

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 206.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 13.60...13.70

Del. quantity cm<sup>3</sup>/ : 13.4...13.6

100 s: (13.1...13.8)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.8...9.0

Del. quantity cm<sup>3</sup>/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.90...2.20

2nd speed rpm : 500

travel mm : 5.50...5.60

3rd speed rpm : 775

travel mm : 6.20...6.40

4th speed rpm : 950

travel mm : 7.30...7.70

5th speed rpm : 1020

travel mm : 9.50...10.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 14.70...15.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 134.0...136.0  
1000 : (131.5...138.5)  
Spread cm3 : 4.00  
1000 : (8.00)

#### RATED SPEED

1st version

Setting point:

Speed rpm : 600  
Rack travel in mm : 15.2

Testing:

1st rack travel in: 12.50  
Speed rpm : 995...1010  
2nd rack travel in: 4.00  
Speed rpm : 1055...1085  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 8.9

Testing:

Speed rpm : 200  
Minimum rack trave: 11.50  
Speed rpm : 300  
Rack travel in mm : 8.80...9.00  
Rack travel in mm : 3.00  
Speed rpm : 480...530

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 950  
Rack travel in m: 13.60...13.70  
2nd speed rpm : 500  
Rack travel in m: 12.90...13.10  
3rd speed rpm : 750  
Rack travel in m: 13.10...13.30

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500  
Del.quantity cm3/ : 117.0...120.0  
1000 s: (114.0...123.0)  
Spread cm3 : 8.00  
1000 s: (11.0)  
Speed rpm : 750  
Del.quantity cm3/ : 122.0...126.0  
1000 s: (119.0...129.0)  
Spread cm3 : 8.00  
1000 s: (11.0)

#### BREAKAWAY

N23

1st version  
1mm rack travel less than

full load rack tr: 12.50  
Speed rpm : 995...1010

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 l  
 Edition : 29.04.88  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 848 798  
 Injection pump  
 Pump designation : PE8P110A32OLS3846  
 EP type number : 0 411 818 717  
 Governor  
 Governor design. : RQ300/1050PA187-21  
 Governor no. : 0 421 801 438

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.50...13.60

Del. quantity cm<sup>3</sup>/ : 15.4...15.6

100 s: (15.1...15.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.8...9.4

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.80...14.60

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 154.0...156.0

1000 : (151.5...158.5)

Spread cm<sup>3</sup> : 5.00

1000 : (8.50)

## RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 14.2

Testing:

1st rack travel in: 12.50

Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1125...1155  
4th rack travel in: 1300  
Speed rpm : 0.00...2.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 9.1

#### Testing:

Speed rpm : 200  
Minimum rack trave: 10.50  
Speed rpm : 300  
Rack travel in mm : 9.00...9.20  
Rack travel in mm : 2.00  
Speed rpm : 370...430

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 128.0...132.0  
1000 s: (125.0...135.0)  
Spread cm3 : 8.00  
1000 s: (13.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 12.50  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 18,3 h  
Edition : 07.03.88  
Replaces : 2.12.86  
Test oil : ISO-4113

Combination no. : 0 401 849 714

Injection pump  
Pump designation : PE10P120A32OLS3829  
EP type number : 0 411 829 703  
Governor  
Governor design. : RQV350...900PAB15  
Governor no. : 0 421 813 557

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 423 LA

1st version kW : 309.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

# BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 10- 9- 4- 1- 8- 7-  
                  6- 3- 5- 2

Phasing : 0-45-72-117-144-189-  
                  216-261-288-333

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

## BASIC SETTING

1st speed rpm : 880

Rack travel in mm : 10.80...10.90

Del. quantity cm3/ : 16.9...17.1

100 s: (16.6...17.4)

Spread cm3 : 0.5

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 4.5...4.8

Del. quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.10...1.30

2nd speed rpm : 400

travel mm : 1.70...2.10

3rd speed rpm : 600

travel mm : 3.10...4.20

4th speed rpm : 900

travel mm : 8.20...8.40

5th speed rpm : 970

travel mm : 9.30...10.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 900

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP



1st version

Speed rpm : 880  
Aneroid pressure h: 700  
Del.quantity : 169.0...171.0  
1000 : (166.0...174.0)  
Spread cm3 : 5.00  
1000 : (8.00)

RATED SPEED

1st version

Control lever  
position degrees: 58...66

Testing:

1st rack travel in: 9.80  
Speed rpm : 915...925  
2nd rack travel in: 4.00  
Speed rpm : 945...975  
4th rack travel in: 1050  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 5...13

Testing:

Speed rpm : 100  
Minimum rack travel: 6.50  
Speed rpm : 350  
Rack travel in mm : 4.50...4.80

CONSTANT REGULATION

Speed rpm : 350...450

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.90...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : 420

Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

N27

Aneroid pressure h: 700

Speed rpm : 600

Del.quantity cm3/ : 166.0...170.0  
1000 s: (163.0...173.0)

Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 138.0...140.0  
1000 s: (135.0...143.0)

Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

: